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U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF PLANT INDUSTRY—BULLETIN NO. 244.

B. T. GALLOWAY, *Chief of Bureau.*

THE EXPORT AND MANUFACTURING TOBACCOS OF THE UNITED STATES, WITH BRIEF REFERENCE TO THE CIGAR TYPES.

BY

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LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Bureau of Plant Industry,
Office of the Chief,
Washington, D. C., February 16, 1912.

Sir: I have the honor to transmit herewith a manuscript entitled "The Export and Manufacturing Tobaccos of the United States, with Brief Reference to the Cigar Types," by Mr. E. H. Mathewson, Crop Technologist in the Office of Tobacco Investigations, and recommend that it be published as Bulletin 244 of the series of this Bureau.

The manuscript was prepared in response to a long-felt need for a general study of the tobacco-growing industry as a whole, so that the various types of tobacco produced in the United States may be understood in proper relation to each other and to the tobacco trade as a whole.

The accompanying maps, indicating the location of the different tobacco districts, are regarded as a particularly valuable feature of the bulletin, and it is in response to a specific demand for such maps from the trade as a whole that they have been prepared for publication.

Respectfully,

B. T. Galloway,
Chief of Bureau.

Hon. James Wilson,
Secretary of Agriculture.

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B. P. I.—727.

THE EXPORT AND MANUFACTURING TOBACCOS OF THE UNITED STATES, WITH BRIEF REFERENCE TO THE CIGAR TYPES.

INTRODUCTION.

DISTINCTION BETWEEN THE EXPORT AND MANUFACTURING AND THE CIGAR TYPES OF TOBACCO.

The designations "export" and "manufacturing" are used by the trade to distinguish these tobaccos from cigar tobacco. The terms themselves do not make the distinction very clear. The making of cigars might, of course, be regarded as a manufacturing process, but as here used the term is limited to the domestic manufacture of pipe and cigarette smoking tobacco, cigarettes, chewing tobacco, and snuff. There is, however, some reason for restricting the term "manufacturing" to these types, because the making of cigars is largely a hand process, requiring in its simpler forms no machinery worth mentioning. In the case of the manufacturing tobaccos, however, the machinery used is the dominating element, from putting the leaf into keeping order by the elaborate and costly machine drier to the finished products of the plug presses, the granulating and cutting machines, and the snuff and cigarette machines. The manufacture of these types adapts itself readily to the concentration of a great business into a single very large factory, with an elaborate and costly machine equipment, without which the chances of successful competition are minimized. As is well known, this point has been of fundamental importance in the success of the great tobacco combinations in the manufacturing field.

The export tobaccos are of the same general type as those used in domestic manufacture, the same general methods are used in producing and handling them, and in finding a market they move through the same channels of trade. The export and manufacturing tobaccos are thus naturally and properly considered together as a single broad type, although, as will be explained later, there are important modifications of quality in connection with some of them that cause certain types to be used mostly for domestic manufacture and consumption and others to be mainly exported.

We have already noted one important difference between the cigar and the export and manufacturing tobacco industries; that is, in the machinery used in manufacture and in the tendency to consolidation in large plants. This, however, is only one of several reasons that cause them to fall quite naturally into different classifications.

The cigar tobaccos are produced on different soils and in other sections of the country. A very different type of seed is used. The methods of cultivation, harvesting, and especially handling after harvest are distinctive, and they move to market through separate trade channels. The Bureau of Internal Revenue expressly forbids the making of cigars and the manufacture of tobacco in the same factory, and with some exceptions the growers, handlers, dealers, and manufacturers of the export and manufacturing tobaccos generally have very little or nothing to do with cigar tobacco.

IMPORTS AND EXPORTS OF TOBACCO.

The standard of quality in the export and manufacturing and in the cigar types of tobacco is very different, which is strikingly emphasized by the fact that while some thirty-odd millions of pounds of cigar tobacco are imported yearly, above 300,000,000 pounds of the other type (average of 1910 and 1911 was 356,261,573 pounds) are each year exported. Strangely enough, however, the value per pound of the tobacco imported is so much greater than of that exported that the value of the imports offsets about two-thirds the value of our exports (for 15 years ending with 1911, 61 per cent; for the fiscal year 1910–11, 72 per cent), so that the balance of trade in favor of the United States on the tobacco account is smaller than might be supposed.

The tobacco which is imported consists principally of cigar-filler leaf and cigars from Cuba and cigar-wrapper leaf from the Dutch East Indies (Sumatra and Borneo, purchased at Amsterdam and Rotterdam, Holland) and is the finest and highest-priced tobacco in the world. Our imports of Turkish tobacco, for use principally in cigarettes, is coming to be of considerable importance and is rapidly increasing.

This imported tobacco bears a very high rate of import duty for the protection of cigar-leaf growers in the United States and for revenue, which is at the rate of $1.85 per pound on wrappers and 35 cents per pound for fillers, with a reciprocity discount of 20 per cent in the case of Cuban imports. Adding this duty to the declared value of the imported tobacco and cigars causes it to exceed the value of our exports by more than 30 per cent. These values are shown in Tables I and II.

TABLE I.—*Exports of tobacco produced in the United States for the fiscal year ended June 30, 1908.*

Kinds.	Pounds.	Value.	Kinds.	Number.	Value.
Leaf	323,033,034	$34,342,293	Cigarettes	1,539,364,000	$2,000,881
Stems and trimmings	7,779,624	384,864	All other tobacco		1,158,051
Plug	6,295,757	1,525,888			
Cigars	2,352,000	51,702	Total		39,463,679

TABLE II.—*Imports of tobacco into the United States for consumption in the fiscal year ended June 30, 1908.*

Kinds.	Pounds.	Value.	Duty.	Value (duty added).
Wrapper leaf	5,396,539	$6,073,444.52	$9,949,094.04	$16,022,538.56
Filler leaf	27,183,222	16,166,369.02	8,513,519.16	24,679,888.18
All other leaf	89,488	35,470.30	42,068.54	77,538.84
Stems	3,164,242	15,280.00		15,280.00
Cigars and cheroots	704,875	4,011,177.80	3,342,527.13	7,353,704.93
Cigarettes	22,452	69,081.87	115,969.28	185,051.15
Other manufactured tobacco	358,841	139,699.80	196,911.59	336,611.39
Total		26,510,523.31	22,160,089.74	48,670,613.05

The trade movements of the export and manufacturing types are of course not entirely separate from the cigar types, and one could easily find points of real contact and more or less striking points of similarity. There are no official figures to quote, but it is generally known by those connected with the trade that every year some of the export types of tobacco are used in the manufacture of cheap cigars, stogies, and cheroots. Conversely, a considerable quantity of cigar leaf in the aggregate is used in manufactured tobacco, particularly in those brands known as scrap tobacco, made largely from cigar cuttings and the heavier and commoner grades of cigar leaf. As noted in Table I, also, more than 2,000,000 cigars are exported annually, which is an insignificant quantity compared with our imports or home consumption, and it is generally known that a small quantity of cigar leaf is exported annually, notably to Canada, England, and Germany.

Imports include also a very small quantity of manufactured tobacco, mostly fancy brands used by foreigners resident here; some cigarettes, mostly of Turkish tobacco; and a considerable and rapidly increasing quantity of Turkish leaf now amounting to about 10,000,000 pounds annually for use in manufacturing Turkish cigarettes and for blending with our own domestic cigarette and smoking-tobacco mixtures.

EARLY HISTORY OF THE TOBACCO INDUSTRY.

DEVELOPMENT IN COLONIAL TIMES.

The commercial culture of tobacco in this country was almost coincident with the first permanent settlement established at Jamestown, Va., in 1607. The people of Great Britain and of Continental Europe had already become familiar with the use of tobacco from the numerous expeditions to various parts of the New World during the previous 115 years since its discovery by Columbus, and during the last 50 years of that period it had become common to include as much tobacco as possible in the return cargo from the various parts of the New World where it might be obtained from the natives. Introduced first because of its supposed medicinal effects, the taste and demand for it had already become general in much of Europe and the British Isles.

The Virginia colonists soon found that it was about the only commodity which they could produce that would exchange to advantage against the various manufactured necessities or luxuries which they desired from the home country. History records that John Rolfe was growing tobacco in the streets of Jamestown in 1612, and in 1618 the first official statement of exports is recorded, which amounted in that year to 20.000 pounds of tobacco at a valuation of 54¾ cents per pound.

These early settlers found a heavily forested country, which required a great expenditure of labor to clear and put into shape for planting. Nothing else that could be grown would produce so large an exchange value from a given area of land against manufactured commodities from home as tobacco. It absorbed almost the entire attention of the early settlers, aside from producing sufficient corn, wheat, and vegetables for mere subsistence. At first the cultivation was restricted almost entirely to the richest river land along the James, the York, and the Rappahannock Rivers, where the largest yield and highest return for a given amount of effort could be obtained

New colonists were constantly arriving and the production of tobacco increased with wonderful rapidity. From 20,000 pounds in 1618 the exports increased in 1627, nine years later, to 500,000 pounds.

In the later forties the palatinate of Maryland (officially established in 1634 with the first settlement at St. Marys) was also developing rapidly in population and in the production of tobacco, which became there also the main reliance and most available resource as a commercial medium for exchange against the necessities and luxuries of the Old World.

In 1639 the total exports for the two colonies reached the large total of 1,500,000 pounds, but the value had dropped to 6.08 cents a pound.

Although the market in England and on the Continent was a rapidly expanding one, production in America under the influence of necessity occasioned by the rapidly increasing influx of immigration, particularly indentured white laborers and negro slaves, increased at a still greater rate. Just at this period also, England was entering upon her navigation and colonial policy, which had for its object the building up of English shipping, creating and retaining exclusive control of the colonial markets for home manufactures and increasing national resources.

Parliament passed laws effectively prohibiting the importation of any tobacco except from the Colonies. This excluded Spanish colonial tobacco, which had hitherto been of considerable importance, and secured a monopoly of the British markets for the Colonies. Conversely, however, the Colonies were forbidden to export tobacco, except to the mother country and in English ships. This had the effect of reserving the market for colonial tobacco to England only and helped to build up English shipping, but it placed the colonists entirely at the mercy of English merchants and shipowners as to prices obtained for tobacco. The British merchants, however, could sell colonial tobacco to other countries freely after it had passed the British ports, and it is estimated that during the colonial period two-thirds or more of the colonial tobacco reaching England was resold for use in continental countries. England thus became the great supply center for leaf tobacco for the rest of Europe.

In order to increase colonial imports, augment customs receipts, and make the farming out of the tobacco monopoly of greater value to the King, the growing of tobacco in Britain, which had already become of some importance in certain sections there, was forbidden. Laws were also passed discouraging the development of any manufacturing activities in the Colonies in order to retain the colonial markets for British products. This, too, had the effect of making still more complete the dependence of the Colonies upon agriculture alone as a means of livelihood, and for exchange purposes tobacco seemed to be the only resource. The whole policy as outlined, together with the rapidly increasing population of the Colonies, conspired to increase production and depress prices.[1]

In 1664 exports amounted to 23,750,000 pounds at 3.09 cents a pound. So it went on with production and prices fluctuating greatly

[1] It should perhaps be noted in this connection that the action of this colonial policy in respect to Maryland was somewhat different from that of the other colonies. Maryland was a palatinate and as such had a degree of freedom from control by the mother country not enjoyed by Virginia and the other Colonies. For example, the policy limiting the exports of colonial tobacco to Great Britain did not apply to Maryland. She thus enjoyed a freer market and sold much of her product directly to other countries in Europe, particularly to France and Holland, and built up a trade in tobacco leaf with these countries which has persisted. These countries continue to take between them the larger portion of the Maryland product. Virginia, however, produced a much larger quantity of tobacco than Maryland, and was really the controlling factor in prices and production in colonial times.

from year to year throughout the whole colonial period, the production always tending to expand rapidly, as the average of a series of years, attended with chronic dissatisfaction from low prices. The lowest recorded price was 1.52 cents a pound in 1730, when exportations were 36,000,000 pounds.

All through this early period tobacco was a constant source of legislation, particularly in the Virginia Assembly, in the effort to control production and keep up the price, but the effort usually met with little or at best only temporary success. Laws limiting the number of plants grown by each planter, limiting the number of leaves to be harvested, providing for the total destruction of a portion of the stocks on hand, or eliminating a crop altogether were passed from time to time. On several occasions memorials were addressed to the King praying for relief. Several times negotiations between Virginia and Maryland were attempted for the purposes of limiting production and maintaining prices, but it usually happened that lack of unity would defeat the effort, and when one colony tried to limit production, the other would increase the acreage. Warehouses, or rolling houses as they were first called, were established at several points with sworn official inspectors. Laws were passed placing heavy penalties against nesting or false packing, in the hope thus to raise the price level which the English merchants would be willing to pay. Both Maryland and Virginia tried to fix artificially the price of tobacco by statute. No legislative device, however, seemed able permanently to overcome the combined influence of the natural conditions favoring the production of tobacco and the artificial influences of the British colonial policy and navigation laws and the rapidly increasing colonial population, including cheap slave labor in particular.

Production, therefore, continued to increase and low prices worried the colonists until the outbreak of the American Revolution, when the production in the Colonies was at its maximum. Exports averaged about 100,000,000 pounds annually for the years 1770 to 1774. But the war, of course, nearly put a stop to exports. The English market, which had been receiving almost all the colonial tobacco, was closed to the Colonies and the danger from seizure by English privateers and gunboats was great and the war itself absorbed the attention of the great body of the people. The low mark for this period was reached in 1776, when exports were only 2,440,947 pounds of tobacco, and the exports for the seven years of war averaged less than 12,500,000 pounds yearly.[1]

[1] It may be of interest to note that soon after the establishment of the permanent colonies in the New England section attempts were made there to grow and export tobacco, but conditions were such that these efforts were attended with no real success. The principal cause of this failure in New England was largely due to its soil, which did not possess anything like the natural fertility of the rich river valleys of Virginia. Tobacco growing in New England never amounted to much until the introduction of the cigar-tobacco industry into the Connecticut Valley in the second quarter of the nineteenth century.

At the close of the Revolutionary War the production and exportation of American tobacco was of course resumed, but under very different conditions, as the British colonial policy and navigation laws were no longer effective here.

Almost from the beginning of the commercial trade in tobacco it seems to have been regarded as an available asset for taxation. In Great Britain and in many of the continental countries it was made to yield a good revenue by duties upon imports and by farming out the privilege of trading in it. Indeed, the Colonies themselves were able to realize considerable public revenue by means of an export tax, which stood for a portion of the time in both Virginia and Maryland at 2 shillings per hogshead. This policy of using tobacco as a subject for taxation, as is well known, has become a fixed policy with most of the leading nations to-day, either in the form of customs duties or internal taxes or by governmental monopoly, and the revenue exacted is in many cases much more than the value of the tobacco itself.

DEVELOPMENT FROM THE REVOLUTION TO THE CIVIL WAR.

In the half century succeeding the Revolutionary War a number of effective causes tended to check the production and exportation of leaf tobacco in the United States. The war itself had made it impossible for European countries to import their regular supplies of American tobacco, and they turned to other sources, particularly to Cuba and to the Dutch East Indies. They also tried the experiment of producing a portion of their supply at home. The long series of Napoleonic wars, which for many years absorbed the attention of all Europe and which at times almost prohibited and nearly always menaced commerce seriously, tended still further to encourage home production of tobacco by the countries of Europe.

From the close of our Revolutionary War to the breaking out of the War of 1812 exports of tobacco fluctuated from about 50,000,000 to 100,000,000 pounds a year, with an average of about 75,000,000 pounds, except in the year 1807, when the effect of the Berlin and Milan decrees made all commerce with England or Europe practically impossible and our exports were but 9,576,000 pounds. The War of 1812, with President Jefferson's embargo proclamation forbidding all American ships to leave port, caused our shipments of tobacco in 1812 and 1813 to aggregate only 5,314,000 and 3,125,000 pounds, respectively.

After the world-wide cessation of hostilities in 1815, following Waterloo in Europe and New Orleans in this country, our exports of tobacco again immediately rose to fairly large proportions. All Europe, however, including England, found itself financially prostrated, and tobacco was one of the commodities selected upon which

to levy still higher taxes. For example, Great Britain, which had been collecting an import duty of 15 cents per pound on tobacco, raised it in 1815 at one leap to 75 cents per pound. Such a great increase in the tax of course seriously upset and hindered normal trade movements in leaf tobacco for a considerable time, and it was not until 1840 that our exports of leaf really began to average higher than they did just before the Revolutionary War. In 1840 the exports of leaf were 147,828,000 pounds and continued at about this average with a slight tendency to increase until just before the breaking out of the Civil War, the maximum figure up to that time being recorded in 1858, when 204,213,000 pounds of leaf were exported.

The greatly increased economic independence resulting from national independence, with freedom from the repressive navigation laws and colonial policy of Great Britain, had the double effect of increasing interest in manufactures (forbidden by the British colonial policy) and rendering the Colonies less dependent upon a single agricultural product. After the Revolutionary War, therefore, from about 1800 on, the price of tobacco ruled at a considerably higher level than in colonial times. In the colonial period from 3 cents to 4 cents a pound was the rule. From independence to the Civil War the average ranged from 6 cents to 9 cents, and it but once got below 5 cents (4.9 cents in 1842) and on several occasions went above 12 cents a pound.

DEVELOPMENT OF TOBACCO MANUFACTURES.

Our manufactures of tobacco in colonial times were inconsequential and our exports of manufactured tobacco were nothing. We even imported considerable smoking tobacco and snuff from the home country. With independence, however, and freedom from England's oppressive colonial policy, the development of tobacco manufactures in the tobacco-growing States at once became of importance. In 1790, 28,637,175 pounds were manufactured and used in domestic consumption. Exports of manufactured tobacco, however, amounted to only 96,811 pounds, but the growth, though gradual in the early days, was steady and certain. In 1820 the exports of manufactures had grown to 1,377,501 pounds, and in the census year 1859, just before the Civil War, to 17,737,232 pounds, the highest record to the present time.[1]

EXTENSION OF PRODUCING AREAS.

During the colonial period Virginia and Maryland had produced practically all of the tobacco in this country, except a comparatively small quantity from the border counties of North Carolina. With

[1] Basis of foregoing figures, Yearbook, U. S. Dept. of Agriculture, for 1908, pp. 683-688.

the close of the Revolutionary War the pioneering movement to the country beyond the Alleghenies into what is now Kentucky, Tennessee, and southern and eastern Ohio went on at an increased rate. Many of these frontiersmen were from the tobacco-producing sections of Virginia and Maryland and it was quite natural that they should try tobacco growing in the new settlements. As in Virginia, the soil and other natural conditions of much of this new country were suitable for the production of tobacco. Marketing facilities were available by means of the numerous navigable rivers connecting with the Ohio and Mississippi Rivers and down these to New Orleans and thence to the markets of Europe on nearly as favorable a basis as that enjoyed by Virginia and Maryland.

As the population of these States grew, so did the production of tobacco, and by 1840 we find Kentucky producing much more than Maryland, and ranking second only to Virginia until, with the favoring influence of the Civil War, which entirely prostrated production in Virginia, she passed into first place, a position which she continues easily to hold by a big margin.

In this period also the production of tobacco was carried over into Missouri on an extensive commercial scale. The crop in that State amounted in 1860 to 25,086,196 pounds and in 1876 its largest crop was produced, amounting to 43,245,000 pounds, causing it to rank in production for that year ahead of the other important producing States, Tennessee, Ohio, Maryland, and North Carolina, and inferior only to Kentucky and Virginia. Missouri's product has recently fallen off markedly in quantity, however, and she is now no longer to be reckoned among the important tobacco-growing States.

BEGINNINGS OF THE CIGAR-TOBACCO INDUSTRY.

During the colonial period the production of distinctive cigar types of tobacco was not recognized, and there had been no important commercial development of tobacco growing in any of the now important cigar-tobacco producing sections of our country.

During the first quarter of the nineteenth century the manufacture of cigars had its infant beginnings as a household industry in some of the Connecticut Valley country towns. The industry grew very slowly at first and correspondingly slow progress was made in the growing of cigar leaf, which likewise had its beginnings in the Connecticut Valley in the section between Hartford, Conn., and Springfield, Mass.

Other centers of development for the production of the cigar or seed-leaf types of tobacco almost coeval with that of the Connecticut Valley were the present area in Lancaster and York Counties, Pa.; the Gadsden County, Fla., area; the Miami Valley, Ohio, area; and

the Onondaga and Big Flats areas in New York State. In none of these areas, however, did the production of cigar tobacco attain much importance till the closing decade of the period just preceding the Civil War. This fact is shown in Table III.

TABLE III.—*Development of cigar-tobacco production in the decade preceding the Civil War.*

Localities.	1849	1859
Connecticut Valley:	*Pounds.*	*Pounds.*
Connecticut	1,267,624	6,000,133
Massachusetts	138,246	3,233,198
Total for Connecticut Valley	1,405,870	9,233,331
Pennsylvania	912,651	3,181,586
Ohio, Miami Valley [1]	1,200,000	3,900,000
Florida	998,000	828,815
New York [2]	500,000	1,500,000
Total cigar leaf	5,016,521	18,643,732

[1] Figures for 1852, 4,000 cases; for 1860, 13,000 cases (from Killebrew's Tenth Census report). Weight of cases estimated at 300 pounds each by the writer.
[2] Approximation from estimates in Killebrew's Tenth Census report.

The present important Wisconsin area had no development of commercial importance until after the Civil War.

This rapid increase in the production of cigar-leaf tobacco during the decade 1850 to 1860 was coincident with a rapid development in the use of cigars in this country. This development was likewise reflected in our imports of cigars and cigar leaf for the same period. The number of cigars imported in 1850 was 124,303,000, valued at $1,469,097, which was increased in 1860 to 460,404,000, valued at $4,581,551. Imports of unmanufactured tobacco (practically all cigar leaf) likewise increased from 2,480,446 pounds (valued at $272,438) in 1850, to 6,940,671 pounds (valued at $1,365,695) in 1860. The larger part of the leaf imported was from Cuba and the cigars were principally from Cuba and Germany. The high-grade cigars came from Cuba and the lower grade, representing the bulk of the imports, came mostly from Germany.[1]

SUMMARY (REVOLUTION TO THE CIVIL WAR PERIOD).

In this brief account of the development of the tobacco industry in the United States from the period of our Revolution to that of the Civil War, the important influence of national independence with consequent economic freedom from the British colonial and navigation policy has been noted. Dependence upon tobacco as practically the sole medium of exchange against manufactured necessities became less urgent because many of the people could turn their attention to the pursuits of manufacturing, including the manufacture of tobacco itself, both for home use and for a slowly expanding export trade.

[1] Dodge's Tenth Census report, p. 48.

The long series of wars involving all Europe, including our own War of 1812, greatly retarded international trade in tobacco as well as in other commodities and, together with the generally high revenue tariffs levied on tobacco in the period succeeding these wars, which had exhausted all the leading nations financially, still further retarded the development of our exports of tobacco and encouraged the home production of leaf on the part of many of the leading nations of continental Europe. It was not until about 1845 that our exports of tobacco began to expand much above the volume reached in the years just preceding the Revolution.

The rapid settlement of Kentucky and border areas in Ohio, Indiana, Missouri, and Tennessee, largely by pioneers from Virginia, Maryland, and North Carolina, rapidly extended the production of tobacco into this new territory so that at the breaking out of the Civil War the annual production of tobacco in this new territory across the Alleghenies was nearly equal to that in the older area, with Kentucky second only to Virginia in production, and Tennessee ranking third, her production being slightly ahead of either Maryland or North Carolina.

The manufacture and use of cigars and the home production of cigar tobacco were having their early struggles for development in the second quarter of the nineteenth century, ending in a period of very rapid development from 1850 to 1860. This development was accompanied by a rapid rise in the importation of cigars and cigar leaf, so that by 1860 the cigar-tobacco trade and the production of cigar leaf had become really an important feature in the tobacco industry.

DEVELOPMENT DURING THE PERIOD SINCE THE CIVIL WAR.

INFLUENCE OF THE WAR.

As in the case of the Revolutionary War, the Civil War and the developments growing out of it exercised most important influences on the tobacco industry in all its phases. Virginia itself, which up to this time was the most important producing area and really dominated the tobacco trade, became the actual battle field of the great struggle which completely absorbed the activities of her people. The cultivation, exportation, and manufacture of tobacco within her borders became greatly disorganized and its cultivation there was almost completely abandoned. The total production of the country, which in 1859 was 434,209,461 pounds, was in 1863 only 163,353,082 pounds. The value per pound, however, was 14.8 cents, a higher figure than had been recorded since 1816, immediately succeeding the War of 1812, and higher than any yearly average figure which has been recorded since the Civil War. The exports of manufactured tobacco decreased from 17,737,232 pounds in 1859 to 4,110,802 pounds in 1861.

The shrinkage in exports of leaf, however, was comparatively slight because, under the influence of high prices, effort was made to export as much as possible. The conditions in the western producing territory, particularly in Kentucky and Ohio, were not so completely unfavorable for the production of tobacco as in Virginia, Maryland, and North Carolina, and the production in the West remained fairly large during most of the active period of the war. The influence of the Civil War, indeed, brought Kentucky to first place as a producing State, which place she has continued easily to hold.

INFLUENCE OF THE NEW FISCAL SYSTEM.

INTERNAL-REVENUE TAX.

The financial necessities of our National Government brought about by the tremendous expenses of the war led to many new devices for raising revenue. The war-revenue act of 1862 placed an internal-revenue tax on all manufactured tobacco. Up to this time no tax had been levied except for two short periods of trial in 1794, and again during the period of the War of 1812. Since the passage of this law in 1862 tobacco has regularly been one of the principal sources of revenue, although the rate of levy has passed through a great variety of changes.

IMPORT DUTY ON CIGARS AND CIGAR LEAF.

Prior to the Civil War the import duty on cigars and leaf tobacco was comparatively low and was not sufficient materially to affect imports. The revenue act of 1862, however, materially increased these rates and greatly stimulated the home production of cigar-leaf tobacco and the home manufacture of cigars. The revenue rates were still further increased later on, with the effect of greatly reducing the imports of both cigars and leaf tobacco and practically excluding all but the highest grades of cigars and leaf.

The import tax on tobacco has been maintained upon a high basis and the present rates of 35 cents a pound on filler and $1.85 a pound on wrapper leaf are equivalent to about 50 per cent ad valorem on fillers and about 175 per cent on wrappers. It is claimed that the domestic wrapper-producing industry would be ruined with any material reduction of the rate on wrapper leaf. Nevertheless, we continue to import wrappers of the finest grades to the extent of about 6,000,000 pounds annually.

Estimating that 3 pounds of these high-grade wrappers are required to wrap a thousand cigars, the duty amounts to a full half cent for each cigar covered with imported wrappers. The duty on cigars ($4.50 a pound and 25 per cent ad valorem) is much higher and is equivalent to about 6½ cents for each cigar

imported. It should be said in this connection, however, that since practically all of the cigars imported are from Cuba, where the reciprocity treaty reducing the statutory figures by 20 per cent is in force, the real tax collected for the larger portion of our imports amounts to about 5 cents for each cigar.

The importation of both cigars and cigar-leaf tobacco received a sharp setback by the raising of the import duties at the time of the Civil War. Because of the demand for the highest grade cigars, the importation of cigar leaf has nevertheless tended since then toward a gradual increase. The official figures show that the average annual importation of cigar leaf was about four times larger in the first decade of the twentieth century than during the few years prior to the Civil War before the tax was increased.

Under the influence of the heavy discriminating duty levied on the manufactured product the number of cigars now imported is still much below the figures set in the last few years preceding the war. The cigars imported in 1860 numbered 460,404,000, as previously stated. These figures [1] were reduced to 26,864,000 in 1868, and in later years, during the period from 1903 to 1908, our importations of cigars have averaged only about 55,000,000 yearly, or about 13 per cent of the high-record figures of 1860. It is unquestionably true, however, that in this country we really smoke more Havana cigars than ever before, as the importation of Havana tobacco has increased sufficiently to much more than offset the decrease in importations of cigars under the influence of the very large discriminating duty on cigars as compared with the raw leaf.

DEVELOPMENT OF CIGAR-LEAF PRODUCTION.

Under the combined influences of a high protective tariff and the rapid increase in popularity of cigar smoking the cultivation of cigar tobacco and the manufacture and sale of cigars have increased enormously, far outstripping the manufacturing types in rate of growth in the period since the Civil War. In 1859 the domestic production of cigar tobacco, as we have seen, was 18,643,732 pounds, and the total production of all types of tobacco in the United States was 434,209,461 pounds. Thus the production of cigar leaf at that time constituted but slightly over 4 per cent of the total production, while in 1909 the production of cigar tobacco was 158,772,000 pounds, and the total for the United States 949,357,000 pounds. The production of cigar tobacco in 1909 was therefore close to 15½ per cent of the total for the period, which is an increase of more than 750 per cent in actual production and an increase in relative standing of more than 300 per cent. The total combined production of all tobacco has but little

[1] On the basis of 12 pounds to 1,000 cigars.

more than doubled during the period. The production of these cigar types in 1909 was distributed as shown in Table IV. The official crop-report figures of the Bureau of Statistics are used.

TABLE IV.—*Production, yield per acre, and value in 1909 of the cigar types of tobacco in the United States, by districts.*

Section.	Production.	Yield per acre.	Farm value per pound Dec. 1, 1909.
	Pounds.	*Pounds.*	*Cents.*
New England	29,655,000	1,638	15.9
New York	7,050,000	1,175	8.0
Pennsylvania	30,732,000	985	9.0
Ohio, Miami Valley	49,500,000	900	9.5
Wisconsin	37,170,000	1,180	9.2
Florida and Georgia	4,665,000	707	34.0
Total	158,772,000	.....	.....

By comparing Table IV with Table III (p. 18), showing the production in 1849 and 1859, it will be seen that this development took place entirely in connection with the areas as then established, except in the case of Wisconsin, which did not become of recognized importance until in the seventies.

The development of tobacco growing in Wisconsin from 1870 to 1880 was exceedingly rapid. In 1859 Wisconsin produced but 87,340 pounds of tobacco; in 1869, 960,813 pounds; and in 1879, 10,608,423 pounds. The maximum crop of tobacco was produced in Wisconsin in 1903, the figures for that year being 69,946,200 pounds, so that the 1909 crop is considerably below the best.

The Florida and Georgia area is a wrapper-producing section. The production is confined principally to Gadsden County and to contiguous areas across the State line in Decatur County, Ga. The tobacco is produced largely under expensive slat or cloth shade and comes more directly into competition with the imported Sumatra product than any other. It is the highest-priced type of tobacco produced in this country.

The New England area, confined principally to the Connecticut and Housatonic River valleys, is classed as a wrapper and binder section. The tobacco is produced mainly in the open, without shade, under intensive methods of fertilizing, cultivation, and handling. The highest-grade leaf makes acceptable wrappers for cigars and the remainder is principally useful for binder purposes. Since 1901 a considerable acreage of shade-grown tobacco has been produced in Connecticut each year. More recently there has been a marked expansion in acreage of shade-grown tobacco in that section, but with what degree of permanence of course remains to be revealed.

Figure 1 shows a typical field of Connecticut tobacco of the Havana seed variety, which is grown almost entirely in the portion of the

FIG. 1.—A Connecticut Valley tobacco field; variety, Havana seed. (Photographed by the Bureau of Soils.)

New England area on the west side of the Connecticut River. Figure 2 shows a group of curing barns in the "Broadleaf" section of the New England district, which is principally on the east side of the

FIG. 2.—Group of curing barns in the broadleaf section of the Connecticut Valley. (Photographed by the Bureau of Soils.)

river from Hartford to Springfield. Figure 3 shows an exterior view of a field of tobacco under cloth shade near Granby, Conn.

Some wrappers are produced also in the other cigar-tobacco producing areas, particularly in the Chemung Valley, New York, tobacco district; the northern part of Lancaster County, Pa.; and in Wayne and Medina Counties, Ohio; but the New England and Florida

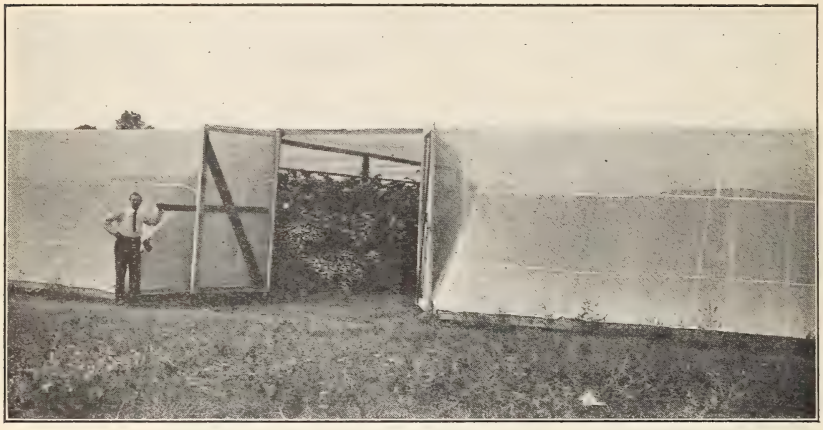

FIG. 3.—Exterior view of cloth shade, Connecticut Valley shade-grown tobacco, near Granby, Conn. (Photographed by the Bureau of Soils.)

districts are the only recognized typical wrapper-producing sections. The other districts are typical producers of other types of leaf, as briefly described below. Figure 4 shows sweated shade-grown

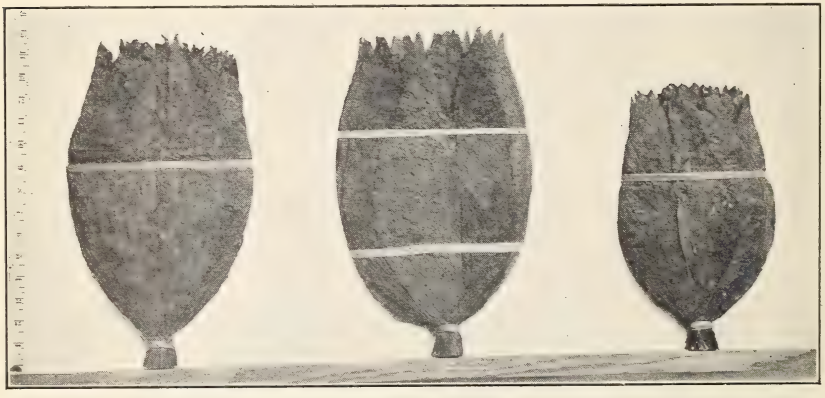

FIG. 4.—Hands of Sumatra-type shade-grown cigar wrappers, Florida and Connecticut. (Photographed by the Bureau of Soils.)

wrappers of the Sumatra type as produced in Connecticut and Florida.

Wisconsin is particularly noted for the fine type of binder leaf which is produced. It is recognized by the trade as typically a

binder State. Figure 5 shows a harvesting scene in the Wisconsin cigar-leaf district. The method shown is similar in the other northern

FIG. 5.—Harvesting cigar-leaf tobacco near Ganesville, Wis. (Photographed by the Bureau of Soils.)

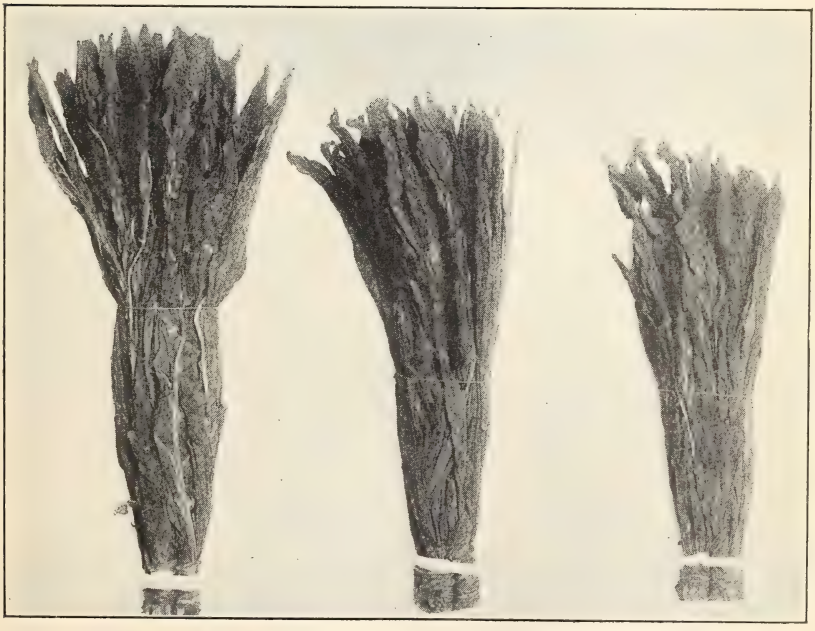

FIG. 6.—Sweated cigar leaf, Wisconsin binders, 22, 18, and 14 inches long, Wisconsin district. (Photographed by the Bureau of Soils.)

cigar-tobacco districts. Figure 6 shows sweated Wisconsin binders 22, 18, and 14 inches long.

Ohio, in the Miami Valley district, is a leading producer of filler leaf, principally of the Zimmer Spanish type. Figure 7 shows samples of sweated Ohio fillers of the Zimmer type graded to differences of 1 inch in length.

The Pennsylvania and New York areas are classed as filler districts, except the Chemung or Big Flats area in New York, which produces more particularly a binder and wrapper type of leaf.

This whole scheme of division into types is only approximate, as all of the districts produce more or less of all three grades; that is, binder, wrapper, and filler. Furthermore, the distinctions between these grades are by no means fixed, particularly between the wrapper and binder grades.

An attempt has been made in recent years to establish the production of cigar filler and wrapper tobacco in certain other sections,

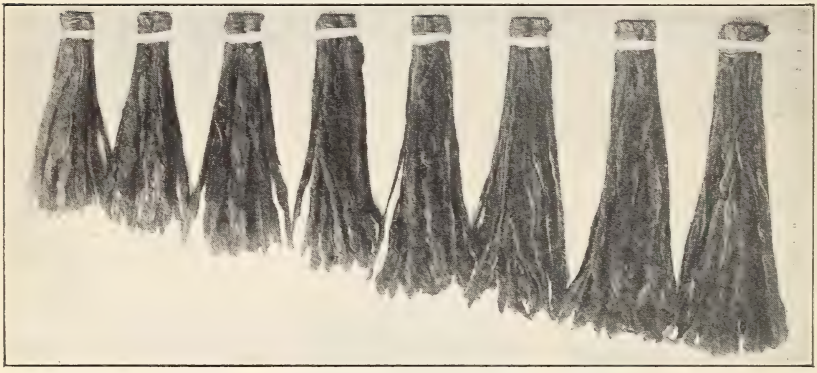

FIG. 7.—Sweated cigar leaf, Ohio cigar tobacco, Zimmer Spanish fillers, 11 to 18 inches long. (Photographed by the Bureau of Soils.)

principally in Texas and Alabama, but the production is not yet of commercial importance.

Figure 8 illustrates the type of seed bed covered either with cloth or glass, as the conditions demand, common in the cigar-tobacco districts of the country.

DEVELOPMENT OF THE CIGAR-MANUFACTURING INDUSTRY.

The domestic manufacture of cigars has had an enormous development since the Civil War period. The number manufactured in 1863 was 199,288,284. In 1870 this number was increased to 1,139,470,774, and the increase has gone on at a rapid rate ever since and is now about 7,000,000,000 per year, the official figures for the fiscal year ending June 30, 1908, being 6,847,417,141. In addition, 1,152,525,926 little cigars (including all-tobacco cigarettes),

weighing less than 3 pounds per thousand, were also manufactured in the same year.

In this development of the cigar-manufacturing industry, which began largely as a home industry with the grower working up leaf of his own production, the development has been more and more toward making this phase of the tobacco business also a factory-made and, to a certain extent, a machine-made product. This tendency has been very decided in the past 20 years, since the development of the bunch-making machines and suction tables. It still remains, however, the one striking phase of the tobacco-manufacturing business where the man of skill but without much capital and with no expense for machinery, working perhaps alone or with two or three assistants, has much chance for success.

The relative degree of concentration of these two branches of the industry can well be shown by stating that the official figures

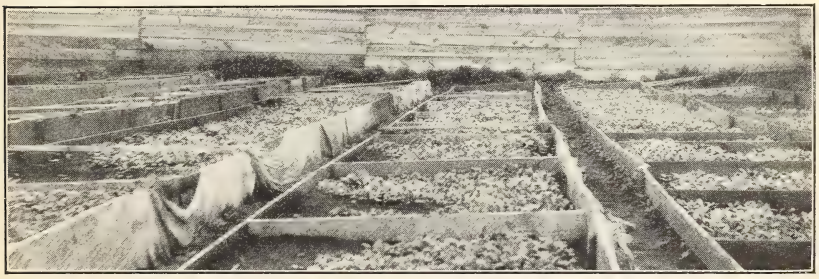

FIG. 8.—Type of seed beds common in all of the cigar-tobacco districts; covered either with glass, as in some of the northern districts, or with cloth.

give the number of cigar factories operated in 1907 as 23,882, against 3,526 factories for the manufacture of all other forms of tobacco combined. Of these latter factories, 2,307 were devoted exclusively to the manufacture of smoking tobacco, although the smoking tobacco amounted to less than 50 per cent of the manufactured product, and in 580 factories cigarettes only were manufactured, leaving but 639 factories engaged in the production of all other forms of manufactured tobacco, including plug, twist, fine cut, and snuff.

DISTRIBUTION OF THE CIGAR-MANUFACTURING INDUSTRY.

Pennsylvania leads in the production of cigars, producing about 2,000,000,000 large cigars annually (average for 1907–1909, 1,840,000,000) with three very large centers of production—the Lancaster, the Philadelphia, and the Pittsburgh districts. Pittsburgh is noted particularly for its production of the class of low-grade cigars known as stogies.

New York ranks next in importance and produces annually about 1,300,000,000 large cigars (average for 1907–1909, 1,255,000,000) so that these two States together produce almost 50 per cent of the total output of the country. Greater New York is the largest single producing center for the manufacture of cigars, producing nearly 1,000,000,000 large cigars yearly.

Richmond, Va., is particularly noted for the production of the class of low-grade cigars known as cheroots, and this district is credited with a production of about 250.000,000 large cigars yearly.

The all-Havana cigars manufactured in this country are largely produced in Tampa and Key West, Fla., where climatic conditions for the proper mellowing, aging, and handling of the imported leaf are believed to be more nearly like those existing in Havana, Cuba, than elsewhere in this country.

The production of small cigars (weighing less than 3 pounds per thousand) is centered at Baltimore, Md., and at Danville and Richmond, Va. Together these three districts manufacture about 75 per cent of all the little cigars and all-tobacco cigarettes produced in the country. Nearly all of the remaining production is concentrated in New York City and Philadelphia.

DEVELOPMENT OF THE EXPORT AND MANUFACTURING TYPES OF TOBACCO.

In the early days the cultivation of tobacco in Virginia was largely confined to the tidewater section, particularly the rich river lands of the James, the York, the Rappahannock, and the Potomac Rivers. As settlements were pushed farther inland, however, tobacco culture was carried along simultaneously.

In the earliest attempts at growing tobacco in Virginia it is fair to suppose that not much differentiation of type was recognized, but the development of the industry had not progressed far until at least two general types were recognized, one the so-called sweet scented and the other known as Orinoco. This distinction is now lost so far as differentiating Orinoco from any other general type of superior sweetness is concerned.

With greater refinements in taste, which of course were reflected in improvements in manufacturing processes, better defined ideas of quality in tobacco were developed. In the Virginia area particularly it was observed that the tobacco produced on the clay hill lands was of better body, finer texture, and of superior richness and luster, and it came to be much preferred to the coarser and rough tobaccos of the river bottom land.

The ordinary sandy coastal-plain soil produced a mild, sweet tobacco, but the yield was much too small.

The main differentiation of type of tobacco in the early days was probably as it is to-day, namely, between the dark, heavy, strong types and the lighter and milder types; and this of course was succeeded by a great number of subsidiary refinements of quality within the two broad classes.

Even before the outbreak of the Civil War the cultivation of tobacco in Virginia was almost completely abandoned in the tide-water section and was confined mainly to the middle and piedmont section of the State between the Blue Ridge and the coastal plain. The great bulk, fully 90 per cent, of Virginia tobacco is now produced south of the James River, but more or less tobacco is grown, mostly of the "Sun-Cured" type, as far north as Fredericksburg and Charlottesville.

DEVELOPMENT OF DIFFERENT METHODS OF CURING TOBACCO.

From the earliest colonial history we learn that the Indians were in the habit of curing leaves of tobacco in the sun or by hanging them in the hut or wigwam where the heat and smoke of the open fire assisted in the cure. The colonists themselves, however, soon began the erection of special log houses for curing the tobacco, which were left more or less open between the logs so that the air could pass through without exposing the tobacco too much to the weather. Figure 9 shows one of these older types of log barns. Unfortunately they are still to be seen here and there in some sections.

The origin of the use of fire in the curing process found its principal reason in the early days in the necessity for protecting the tobacco against damage by pole sweating or house burning as it is more generally called. It was also soon learned that the tobacco cured by open fires kept much better, especially if it was to stand a long ocean trip. It was true also that the desirable qualities of the light, mild tobaccos would be obscured and negatived by heavy firing with smoky fires, which would not be the case with the heavy types, whose rankness would be modified and quality improved by the heat used and the creosotic flavor imparted.

In the early days the British colonial policy demanded that the product of her colonies be shipped only to England. The product of Virginia, therefore, consisting mostly of open-fire and smoke-cured tobacco, went directly to England and was there used for home consumption and distributed by her merchants to continental countries. The habit of using this heavy fire-cured tobacco of smoky flavor, therefore, became firmly fixed in a number of the nations of Europe which used American tobacco. Habit is everything in the use of tobacco and the tobacco user desires what he has been in the habit of having. The reasons for continuing the practice of fire curing the

dark, heavy-bodied tobaccos which we produce for export purposes are, therefore, nearly as strong to-day as ever.

Owing to the light nature of its soil, southern Maryland has always produced a light-colored and light-bodied tobacco possessing little gum or oil, which keeps well if properly conditioned when only air-cured. Fire is not necessary in the curing except in damp, muggy weather. Fire curing has never been the factor in curing Maryland tobacco that it was and is with the heavier bodied Virginia tobaccos, so that to-day fire curing in southern Maryland is almost never practiced and Maryland tobacco is essentially an air-cured product. It

FIG. 9.—Early type of log curing barn for air-curing tobacco still seen in some of the Virginia, Kentucky, and Tennessee districts.

is interesting to note in this connection that Maryland, having been granted a palatinate form of government, was not subject to the British colonial laws and could, therefore, find a market where she pleased. Much of her tobacco, therefore, went directly to the European markets, particularly France and Holland, and so strong is habit in influencing the use of tobacco that these two nations have continued to take annually the bulk of the tobacco Maryland produces.

Much of the soil in the southern tier of counties in Virginia, particularly in Mecklenburg, Halifax, Pittsylvania, and Henry Counties and immediately across the North Carolina line in Granville, Person,

and Caswell Counties, is of a thin, light, sandy character upon a yellow, sandy, clay subsoil. The tobacco produced on these soils was mild and fine, of good body, tending to cure naturally to a mottled orange or yellowish-red to brown color.

This type of tobacco was found to be particularly pleasing to the domestic taste for chewing and smoking purposes and, as the home trade has never cared for the smoky flavor on tobacco, it became the custom to cure this type largely by air, open fires being resorted to only when necessary. In order to keep down the flavor of smoke, growers after a time learned to use charcoal instead of wood when heat was necessary in curing this type. By proper management of these fires in close barns, with arrangements for ventilation in the proper manner and at the proper time, it was discovered that the fires could be used to great advantage in making the colors still brighter and of greater uniformity, developing at the same time an agreeable and characteristic sweet scent and flavor.

In this coal system of curing, the barns were tightly daubed between the logs and small fires were built in depressions in the earth floor of the barn about 4 feet apart each way. The labor involved in making the charcoal was very great and the task of walking around in the hot barn at frequent intervals day and night for several days to attend the fires was a very disagreeable one.

The most important step forward in developing the method of curing this type of tobacco was in the use of flues, at first built of rock or brick and finally of sheet iron. With this arrangement the mouth of the furnace was on the outside, any kind of wood that would burn satisfactorily could be used, the heat would pass through the flues, thus maintaining a much more uniform and satisfactory temperature, and the smoke finally pass out of the smoke pipes without imparting a smoky flavor to the leaf or discoloring it in any way. The use of sheet-iron flues with brick or stone furnace openings has now become the universal practice throughout all the bright flue-cured belt.

The methods of managing the cure with these flues have been reduced to a high art and the flue-cured type of tobacco has become one of the most useful and satisfactory tobaccos for both domestic use and export.

Thus we have, as finally developed, three distinct methods of curing tobacco: (1) The method of curing by air, that is, simply hanging the tobacco up in barns, with natural ventilation subject to more or less artificial control; (2) the open-fire and smoke method; and (3) the flue-cure method.

Since the war period little, if any, new territory has been added to the open-fire cured types and the production has a tendency to

decrease rather than to increase. On the other hand, the air and flue-cured types have enormously increased in acreage and production.

At the present time the average annual production of the air-cured types of tobacco is about as follows:

	Pounds.
Cigar tobacco	160,000,000
Burley	215,000,000
Green River	35,000,000
One-Sucker type	30,000,000
Virginia sun and air cured	10,000,000
Maryland	20,000,000
Total	470,000,000

These air-cured types thus constitute more than 50 per cent of the total production of the country and, with the exception of the Maryland type, are used principally in domestic manufacture for domestic consumption. The most important of these air-cured types, particularly the cigar tobaccos and Burley, have received their greatest development since the Civil War.

The annual production of the dark types of tobacco cured by open fires is substantially as follows for the types of much importance:

	Pounds.
Virginia dark	52,000,000
Hopkinsville and Clarksville	70,000,000
Paducah	60,000,000
Henderson or Stemming	35,000,000
Eastern Ohio export	3,000,000
Total	220,000,000

The eastern Ohio export type, while it is an open-fired tobacco, can not properly be classed as a dark, heavy-bodied type, and it is really a type quite distinct from the other fire-cured types which are all dark, rich, heavy sorts. Eastern Ohio export tobacco more closely resembles the Maryland type, moves to market through the same trade channels, and is described more at length in connection with this type of tobacco.

All of these fire-cured types had reached approximately their present state of development and annual production prior to the Civil War period.

The annual production of the flue-cured type of tobacco averages about as follows:

	Pounds.
Old Belt (Virginia and North Carolina)	125,000,000
New Belt (eastern North Carolina and South Carolina)	95,000,000
Total	220,000,000

While this type had its beginnings several years before the Civil War period, it is nevertheless in its present development essentially a new type and indeed its great development on its present basis has taken place mostly since 1890, especially in the New Belt section.

THE DARK-FIRED TYPE OF TOBACCO.

The dark-fired type of tobacco was produced extensively for export purposes in Virginia in the early days. It has continued to the present time to be the type chiefly grown for this purpose and, indeed, by far the larger portion of this type now produced is exported and, conversely speaking, it forms the major portion of our tobacco exports. The soils upon which these dark-fired types of tobacco are produced vary considerably in character, but they are all of a class generally spoken of as strong, durable soils rather than light and leachy, running more to clay than to sand. In every case they are underlain by the strong, rich, clay subsoils, generally red in color, which are so common over the uplands of middle Virginia and western Kentucky. In harvesting, the entire plant is cut after splitting the stalk downward to within a few inches of the point of cutting off. The stalk is then inverted and straddled over the stick to hang for curing, rather than being speared on as is the practice with some other types, notably the cigar types and the Maryland type

DOMESTIC DEMANDS.

No extensive domestic taste has been developed for this strong, smoky-flavored type of tobacco. As a whole, the production or demand for this type has not developed much in recent years, and the maximum production was reached approximately in the fifties and seventies of the last century. In several of the European countries and in Great Britain, however, the taste for this class of tobacco is well established and the yearly demand in this country for export purposes is substantial and fairly steady.

A considerable quantity of the aggregate annually finds its way into domestic consumption, principally in the form of snuff. Some wrappers for domestic plug are also obtained from this type and a small amount of low-grade so-called Greenville plug, manufactured for domestic use, is made partly or entirely from this type. Originally this type of plug was manufactured almost exclusively in Greenville, Muhlenberg Co., Ky., from which town it took its name. The tobacco of that section was less heavily fired than in some others, and three or four factories (large for the old days) were devoted to this industry. These factories are now mostly dismantled, and what little Greenville is still put up is mostly manufactured elsewhere.

Definite figures are not available, but for all purposes it is probable that some 30,000,000 to 35,000,000 pounds of this dark-fired type of tobacco finds its way into domestic consumption yearly.

Snuff is by far the most important item in this domestic consumption, and extensive leaf-handling plants are centralized for the

Kentucky-Tennessee district at Clarksville, Tenn., and in the Virginia dark district at Lynchburg, Va. The predominating requirements for snuff are met by the strong, fat, rich grades, but, since other requirements are not exacting, the class of leaf used is classed only as common to medium.

The leaf of this type of tobacco used as wrappers for plug, both for domestic use and export, is the highest grade produced. The requirements for size, body, fineness, color, etc., are so exacting that the proportion to be found in any crop is small. The wrappers are picked up here and there, usually in small lots averaging less than 100 pounds. Because of favorable soil conditions these wrappers are obtained mostly in the region subsidiary to Lynchburg in the Virginia dark district as a market center and in the Clarksville district in Tennessee. These dark wrappers are bought at farm prices ranging from $12 to $25 for 100 pounds, but the quantity is so small that it raises but slightly the general average price for the type as a whole, which in the past 10 years has averaged from about $5 to $9 per 100 pounds, although individual crops sometimes sell at double the general average or more. An uncertain and at most a very small proportion of this dark-fired type is also used in the manufacture of cheap domestic cigars, some of them of the Italian type for the large Italian population in and about New York City. Generally speaking, however, this dark-fired type of leaf is too strong and rank to be used in the manufacture of cigars for domestic use. Its use in this way is really an anomaly in the shape of an exception to prove the rule of its unfitness for the purpose.

FOREIGN DEMANDS.

This dark-fired tobacco is the principal export type. Of the total annual production, which aggregates about 220,000,000 pounds, some 185,000,000 or 190,000,000 pounds are exported. This type thus constitutes more than 50 per cent of our total leaf exports, amounting to more than 300,000,000 pounds annually.

Great Britain, Italy, Germany, France, Spain, Austria, and Belgium, in about the order named from the standpoint of quantity taken, are the principal foreign purchasers and consumers of this type of leaf. Among these countries, Italy, France, Spain, and Austria are known to the tobacco trade as régie purchasers; that is, the tobacco industry in these countries is a Government monopoly and the tobacco is, therefore, purchased by agents for the account of the Government. Italy, France, and Austria conduct the monopoly directly under Government auspices, but in the case of Spain the monopoly privilege is let out under certain restrictions for a period of years to a private concern known as the Compania Arrendataria de Tobaccos. The purchases of Austria and Italy in this country

are practically all of this dark-fired type, and the total purchases of this type by these countries is thus accurately known.

Next to the plug wrappers mentioned above, Austria and Italy take the highest grade leaf of this type. Their requirements are for a leaf of good size, smooth, with plenty of life and elasticity, fine, and with solid, uniform color. This tobacco is used in the manufacture of cigars. The finest leaves are used for wrappers and other grades for filler purposes. Austria demands a lighter brown color than Italy, and generally pays a somewhat higher price. The larger percentage of the Austrian leaf is obtained in the Virginia dark districts while most of the Italian leaf is obtained from the Clarksville, Hopkinsville, and Paducah districts of Kentucky and Tennessee.

Austria-Hungary takes on the average, according to their own trade reports (nearly all goes to the Austrian Régie), about 6,000,000 or 7,000,000 pounds of leaf tobacco annually from the United States, all of the better grades of this dark-fired type.

Italy generally takes from 30,000,000 to 40,000,000 pounds annually, practically all of which is also of the good to best grades of the dark-fired type.

Germany and the German ports, principally Bremen, are also important outlets for large quantities of the medium to good grades of dark-fired leaf, constituting the larger portion of the 30,000,000 to 40,000,000 pounds of imports of leaf tobacco from the United States. The German grades are obtained particularly from the Clarksville district in Kentucky and Tennessee, and also in the Lynchburg section of the Virginia dark district.

The United Kingdom is the heaviest single purchaser of the dark-fired type of tobacco. The total purchases of all types amount annually to 100,000,000 pounds or more, of which about 50 per cent is of the dark-fired type. The great source of supply of British dark leaf, however, is in the Henderson or Stemming district of western Kentucky, although buyers for the English trade are active purchasers also in all the other dark-fired districts in Kentucky, Tennessee, and Virginia. Great Britain takes a number of grades of dark tobacco, including the low, medium, and high grades.

The British import duty is very high, 88 cents a pound in 1910, and in order to offset this as much as possible, it has been the custom to stem the tobacco in this country before shipment, so as to reduce the weight of the tobacco paying the high duty. The Stemming district received its name because so large a percentage of tobacco produced there was stemmed preparatory to shipment to Great Britain. A differential duty on strips has in recent years materially reduced the percentage of tobacco that is stemmed before shipment to Great Britain.

France generally purchases about 30,000,000 pounds of tobacco in this country yearly, subject to quite wide fluctuations in particular years, much of which is of the dark-fired types and consists principally of the lighter-bodied tobacco of medium to low grade. Much the larger percentage of the dark-fired tobacco taken by France is from the Paducah district of Kentucky and Tennessee.

The Spanish buyers take low-grade tobacco wherever it can be obtained cheapest. Their purchases in this country fluctuate con-

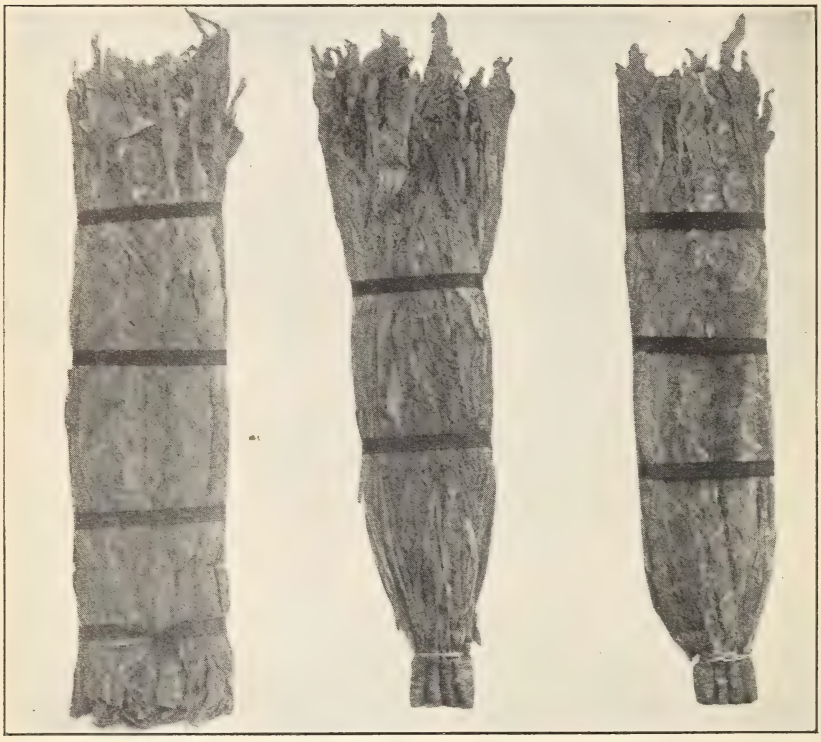

FIG. 10.—English strips, English leaf, and Austrian leaf tobacco from the Virginia dark-fired district. (Photographed by the Bureau of Soils.)

siderably, according to the price of tobacco. The quantity of American tobacco purchased by Spain generally ranges from 10,000,000 to 20,000,000 pounds annually, most of which is usually of the lowest nondescript grades of dark-fired leaf.

The Belgium trade is also estimated to take 2,000,000 or 3,000,000 pounds annually of this dark-fired type of leaf of a grade and quality about like that taken by France.

Several million pounds of rather coarse but very long, dark tobacco is tied in the customary small bundles and prepared by special treatment for export to Africa to be sold in the leaf at retail to the natives.

Leaf of a like nature, often spoken of as black fat or black horse, is similarly prepared for export to parts of the West Indies, Mexico, and a number of Spanish-American countries of Central and South America. A portion of this type of leaf aggregating probably some 5,000,000 pounds or more is obtained from different parts of the dark-fired districts of the country where leaf of suitable length and reasonable price may be obtained, although the presence of smoke on the leaf is not an essential requisite. Much of this "rehandling" type, as it is generally called, is obtained also from the One-Sucker districts of Kentucky and Tennessee and southern Indiana.

Figures 10 and 11 show samples of some of these various standard types, produced in the dark-fired districts of the country.

FIG. 11. — Dark-brown "snuffer" tobacco from the dark-fired districts of Kentucky, Tennessee, and Virginia. (Photographed by the Bureau of Soils.)

REVIEW OF THE DARK-FIRED TYPE BY DISTRICTS.

THE VIRGINIA DARK DISTRICT.

The annual production of dark-fired tobacco in Virginia is about 52,000,000 pounds, or about 25 per cent of the total production of this type. The Virginia State Department of Agriculture now collects accurate figures of the first-hand sales of tobacco in Virginia by markets, but nothing is available of an accurate statistical nature to show the distribution of the acreage of the different types of tobacco produced in the State. Dark-fired tobacco, however, constitutes not quite one-half of the total annual production of the State, distributed by counties, according to the best estimates obtainable, about as shown in Table V.

TABLE V.—*Estimated annual production of dark-fired tobacco in Virginia, distributed by counties arranged from west to east.*

Counties.	Pounds.	Counties.	Pounds.
Albemarle	500,000	Amelia	1,700,000
Nelson	2,500,000	Charlotte	4,000,000
Botetourt	500,000	Prince Edward	4,000,000
Rockbridge	250,000	Cumberland	2,100,000
Franklin	500,000	Powhatan	800,000
Bedford	6,000,000	Chesterfield	600,000
Amherst	3,500,000	Lunenburg	2,500,000
Fluvanna	250,000	Mecklenburg	2,000,000
Buckingham	5,200,000	Brunswick	1,500,000
Appomattox	3,000,000	Dinwiddie	3,500,000
Campbell	5,000,000		
Pittsylvania	250,000	Total production of dark-fired tobacco in Virginia	52,000,000
Nottoway	3,000,000		

Of the 23 counties in Virginia that produce commercial quantities of dark-fired tobacco, only about 15 produce each as much as 1,000,000 pounds a year.

The regular Virginia dark-fired type of tobacco, frequently designated "brown shipping" to differentiate it from the olive-green or black stemming subtype, is marketed loose at auction at the various sales warehouses scattered throughout the dark-tobacco section.

Lynchburg is the largest of these markets and alone handles about one-third of the entire dark-fired crop of the State. Other important dark markets are Farmville, Petersburg, Drakes Branch, Blackstone,

FIG. 12.—Plant bed in woods, with cloth covering, showing the common method of growing plants in nearly all the export and manufacturing tobacco districts. (Photographed by the Bureau of Soils.)

Bedford City, and Brookneal. A number of smaller markets are located at other points.

The proportion of fine grades is generally considered to be larger in the Virginia dark-fired crop than in the western crop as produced in Kentucky and Tennessee, and the colors as a whole do not run quite so dark as does the "western" tobacco. As a whole, the heaviest bodied and best-textured dark-fired tobacco of Virginia is produced on the strong soils of the western portion of the district lying tributary to Lynchburg as a market center. A larger percentage of leaf suitable for plug wrappers is obtained from this section than from any part of the dark-fired district. The rich but fine-textured chocolate soils in the coves among the hills scattered here

and there along Stonewall and Bent Creeks, in the northern part of Appomattox County, and along Goose Creek, in Bedford County, are especially famous locally for the high percentage of leaf which they produce suitable for plug wrappers and other high-grade purposes. Charlotte County, as a whole, is noted for the large proportion of tobacco it produces which is particularly adapted to the requirements of the Austrian Régie, for plug wrappers, and other high-grade purposes. The Cub Creek section of this county is particularly famed because of the excellent quality of the leaf produced.

FIG. 13.—Common type of Virginia log barn for curing dark tobacco with open fires. (Photographed by the Bureau of Soils.)

Figure 12 illustrates the type of seed bed common not only in the dark-fired Virginia district but in nearly all of the other export and manufacturing tobacco districts as well. A clearing is made on suitable land in the woods which is to be worked up after burning brush on the land to destroy weeds and insects and mellow the soil. The cheesecloth cover protects the young plants from cold and keeps off flying insects, which are frequently very troublesome to unprotected beds.

Figure 13 shows a characteristic log barn, tightly chinked and daubed with mud, common in Virginia and elsewhere, for curing dark tobacco by open fires on the earthen floor.

A considerable proportion of the rich, fat leaf suitable for the Bremen trade and for export to England is also found in the Lynchburg district. Dark Virginia leaf or strips from this section are generally spoken of by English dealers as Lynchburgs.

Good, rich leaf suitable for snuff stock is also obtained from the Lynchburg district in considerable quantities.

About 5,000,000 pounds of plug for export is manufactured yearly, principally from Virginia dark-fired leaf. Most of this plug is manufactured at Petersburg, Va., and much of it is marketed in Australasia.

DISTRIBUTION IN USE OF THE VIRGINIA DARK-FIRED TYPE.

Accurate figures of a statistical nature are not to be obtained as to the exact final disposition of the dark-fired tobacco of Virginia or, indeed, of any other type.

Table VI shows estimates based on general information of a private nature obtained from members of the tobacco trade.

TABLE VI.—*Estimated distribution in use of Virginia dark-fired tobacco.*

Kind and place.	Pounds.	Kind and place.	Pounds.
Wrappers for plug	1,000,000	Spain	1,500,000
Austria	5,000,000	Miscellaneous export trade, principally Belgium, Norway, and Sweden	6,000,000
Italy	4,000,000	Snuff and miscellaneous domestic consumption	8,000,000
France	3,000,000		
Germany and Bremen	8,000,000		
Great Britain	7,500,000		
Export plug and Australia	6,500,000	Total	52,000,000
African and rehandling	1,500,000		

OLIVE-GREEN OR BLACK STEMMING DISTRICT.

Along the northern border of this dark-fired section in Virginia, just south of the James and Rivanna Rivers, is a stretch of country in which production is rather scattered and in which a modified type of fired tobacco is produced, known as olive-green or black stemming tobacco. The aggregate production of this type of leaf is about 2,000,000 pounds yearly, divided among the counties about as shown in Table VII.

TABLE VII.—*Estimated annual production of olive-green or black stemming tobacco in Virginia, distributed by counties arranged from east to west.*

Counties.	Pounds.	Counties.	Pounds.
Chesterfield	100,000	Fluvanna	250,000
Amelia	200,000	Albemarle	350,000
Powhatan	800,000		
Cumberland	100,000	Total	2,000,000
Buckingham	200,000		

The region of country in which the olive-green or black stemming type of tobacco is grown has been separately outlined on the map (Pl. I), as it is really a type quite distinct, although it has been included in Table V of 23 counties, covering the entire production of open-fire cured tobacco in the State, and in Table VI, showing how the type is distributed in use.

Olive-green tobacco is produced mostly from seed of the One-Sucker type, and it is a long, rich, heavy-bodied but rather coarse tobacco. Although cured by open fires, the method of curing is considerably modified as compared with other open-fire cured types, and the tobacco is cured up at once without yellowing, if possible, to a uniform olive green. Tight barns, high heat from the outset, and sappy tobacco are the main features in obtaining a good cure. So high and sustained is the heat that the cure is completed usually in 36 to 48 hours. The difficulty is in getting the color uniform and solid, which when successful varies in shade from olive green to very dark brown and black.

England has been practically the sole purchaser of this type of tobacco, and until recently it was mostly stemmed before shipment. A strong odor of smoke is also desired and, because of this, much of this type after purchase from farmers is rehung on sticks and placed in special barns and heavily smoked by open fires with hardwood for a period of a week or more to give a strong creosotic flavor. A considerable portion of this type is bought and handled at Amelia, Va., where it is bought direct from the wagon at private sale.

Dark-Fired Tobacco in Kentucky and Tennessee.

Originally introduced from Virginia, the quantity of dark-fired tobacco grown in Kentucky and Tennessee now amounts to fully three times the Virginia production, and to distinguish it from "Virginia dark" it is generally spoken of as "western" tobacco.

Three subdivisions of this western dark-fired section are well recognized: (1) The Clarksville and Hopkinsville district, (2) the Paducah or Western district, and (3) the Henderson or Stemming district.

THE CLARKSVILLE AND HOPKINSVILLE DISTRICT.

In recent years the production of the Clarksville and Hopkinsville district has averaged about 70,000,000 pounds annually, about 40,000,000 pounds being produced on the Kentucky side and 30,000,000 on the Tennessee side. This district has the reputation of producing a somewhat better grade of leaf on the whole than either of the other western dark districts, which generally outsells the others by as much as a cent or more a pound for the average of the entire crop. The portion of this district tributary to the Clarksville, Tenn., market produces some of the finer grades, suitable for plug wrappers

and the Austrian and Italian Régie and German and Bremen requirements particularly. The McAdoo and Red River section in the

FIG. 14.—Characteristic tobacco plant of the Clarksville type, Montgomery County, Tenn. (Photographed by the Bureau of Soils.)

FIG. 15.—Worming and suckering tobacco in the Clarksville district, Montgomery County, Tenn. (Photographed by the Bureau of Soils.)

western portion of Montgomery County and in Robertson County is particularly noted for the fine grades of leaf produced. Figure 14 is

an illustration of the characteristic large, broad, and heavy leaf (Pryor) type of plant generally grown in the Clarksville district. Figure 15

FIG. 16.—Harvesting scene, Clarksville district, Montgomery County, Tenn. (Photographed by the Bureau of Soils.)

shows a field of this type near Clarksville from which the worms and suckers are being removed, a tedious but very necessary operation;

FIG. 17.—Wilting and yellowing tobacco on the scaffold, Clarksville district, Montgomery County, Tenn., showing a common method in nearly all districts. Plants that were unripe at the time of cutting remain standing in the field. (Photographed by the Bureau of Soils.)

and figures 16 and 17 present characteristic scenes common over much of the export and manufacturing tobacco territory.

Production is most concentrated in Montgomery and Robertson Counties, in Tennessee, and the southern portion of Christian, Todd, and Logan Counties, in Kentucky. The Clarksville district extends into six other counties in Tennessee, all bordering on Montgomery or Robertson Counties. The distribution of production of this type in Tennessee is estimated with approximate accuracy in Table VIII.

TABLE VIII.—*Estimated annual production of Clarksville type of tobacco in Tennessee, distributed by counties.*

Counties.	Pounds.	Counties.	Pounds.
Montgomery	10,000,000	Houston	750,000
Robertson	10,000,000	Sumner	500,000
Cheatham	3,500,000	Davidson	250,000
Stewart	3,000,000		
Dickson	2,000,000	Total	30,000,000

In Kentucky the Clarksville and Hopkinsville district extends in whole or in part into eight counties, an estimate of the annual production of which is shown in Table IX.

TABLE IX.—*Estimated annual production of the Clarksville and Hopkinsville type of tobacco in Kentucky, distributed by counties.*

Counties.	Pounds.	Counties.	Pounds.
Christian	13,000,000	Muhlenberg	2,000,000
Logan	7,000,000	Lyon	2,000,000
Trigg	6,000,000	Simpson	1,000,000
Todd	6,000,000		
Caldwell	3,000,000	Total	40,000,000

The tobacco produced in Muhlenberg, Caldwell, and Lyon Counties is of a mixed type, and can not be classed strictly in either the Hopkinsville, Henderson, or Paducah districts. It is buffer territory and the lines dividing the districts, as shown on the map, are somewhat arbitrary, but are the best approximations practicable. Muhlenberg County is buffer territory between four districts, the Hopkinsville, the Stemming, the Green River, and the One-Sucker or southern Kentucky districts. Most of the tobacco grown in Muhlenberg is produced in the southern and western portions of the county and most of it is at least lightly smoke-cured by open fires. That from the southern portion finds its way to market mainly through the Hopkinsville district and that from the western part mainly through the Stemming section. The northeastern part of Muhlenberg is largely given up to coal mining and but little tobacco is produced in that section. Muhlenberg tobacco is designated by some as the Greenville type, from the name of the county seat, which was formerly an important center for the manufacture of the so-called Greenville plug. The total production of tobacco in Muhlenberg County is

about 3,000,000 pounds annually, of which 2,000,000 pounds have been classed with the Hopkinsville district and 1,000,000 pounds with the Henderson or Stemming district.

Likewise the product of Caldwell and Lyon Counties is also very uncertain as a whole in respect to type and classification, and to indicate the individuality, or rather lack of it, in the product of these counties it is sometimes designated as the Princeton and Eddyville type from the names of the chief market towns in these counties.

Detached from the general area in Tennessee, about Tallahoma as a center, in the southwestern portion of Coffee County, there is a small area which for about 10 years past has been producing a few hundred thousand pounds of dark tobacco annually, partly air cured

FIG. 18.—Hauling tobacco from the field to the curing barn, showing a common but careless method practiced in many sections as well as in the Paducah district, Graves County, Ky., where the photograph was taken.

and partly fire cured, which has generally moved to market through the Clarksville district. Clarksville and Springfield, Tenn., and Hopkinsville, Ky., are the principal market centers for this district. Adairville, Cadiz, and Guthrie, Ky., are other important local receiving points.

THE PADUCAH DISTRICT.

The type of tobacco produced in the Paducah district of the western dark-fired section is not greatly different from that of the Clarksville and Hopkinsville district. The product as a whole is not quite as fine and rich as that of the Clarksville district.

Figure 18 shows a careless method which is altogether too commonly practiced in handling tobacco from the field to the curing barn.

The annual production of leaf tobacco in the Paducah district is about 60,000,000 pounds, about 45,000,000 pounds being produced in

Kentucky and 15,000,000 pounds in Tennessee. Graves County in Kentucky and Weakley County in Tennessee together produce nearly one-half of the entire crop of the Paducah district. The production is distributed, by counties, in Tennessee about as follows:

	Pounds.
Weakley	9,500,000
Henry	5,000,000
Obion	500,000
Total for the Paducah district in Tennessee	15,000,000

Detached from the main area of the Paducah district, a small section near Dyersburg, in Dyer County, produces some 200,000 or 300,000 pounds of tobacco of the Paducah type annually.

In Kentucky the production of the Paducah type of tobacco is distributed about as follows:

	Pounds.
Graves	15,000,000
Calloway	8,000,000
Ballard	7,000,000
Marshall	5,000,000
McCracken	3,500,000
Carlisle	3,500,000
Fulton	1,500,000
Hickman	1,000,000
Livingston	500,000
Total for the Paducah district in Kentucky	45,000,000

Paducah and Maysville, Ky., are the most important market towns for this district. Murray and Fulton, Ky., and Martin and Paris, Tenn., are also receiving centers of importance. The Paducah district is often spoken of as the "Western district," the terms being synonymous.

DISTRIBUTION IN USE OF THE COMBINED CLARKSVILLE AND HOPKINSVILLE AND THE PADUCAH TYPES.

The general character of the tobacco produced in the Clarksville and Hopkinsville district and in the Paducah district is substantially the same. The strong red clay subsoil is much more prevalent in the Clarksville and Hopkinsville district than in the Paducah district, which runs more to gray or yellow. Differences in soil naturally cause some differences in the character of the tobacco produced in the two districts. That from the Clarksville and Hopkinsville district is as a whole richer and darker as well as finer in texture than that from the Paducah district.

The really fine grades, such as plug wrappers either for domestic use or for export (principally to Canada), are obtained almost entirely from the Clarksville district, as are also the fine Austrian and Swiss types and the finer Italian grades.

But the fine grades are produced in relatively very small volume. The lighter bodied mottled types suited for the French and Belgian trade are found more largely in the Paducah district, while the fat, rich, German grades come largely from the Clarksville district, as do also the larger portions of the better bodied snuff types.

For the general purposes of this publication the two districts may best be considered as a whole in discussing the final distribution of their product. The general methods of cultivation, curing, handling, and marketing the tobacco produced in the two districts are almost identical. The combined Clarksville and Hopkinsville and the Paducah districts are often spoken of in local parlance as the "black patch."

A fair estimate of the average production of the combined "black-patch" district for the past five years is about 130,000,000 pounds of tobacco annually, 70,000,000 pounds in the Clarksville and Hopkinsville district and 60,000,000 pounds in the Paducah district. In 1910 the combined production was about 140,000,000 pounds and in 1903, with the largest crop on record, it was about 150,000,000 pounds. It has, however, in some years sunk considerably below these figures. An approximate average distribution of this product is estimated to be about as shown in Table X.

TABLE X.—*Estimated distribution in use of the tobacco produced in the Clarksville and Hopkinsville and the Paducah districts.*

Kind and place.	Proportionate distribution.	
	Per cent.	*Pounds.*
Plug wrappers	1	1,250,000
Austria	1½	2,000,000
Switzerland	1½	2,000,000
Italy	23	30,000,000
Snuff and miscellaneous domestic use	19½	25,250,000
Germany and Bremen	20	26,000,000
France	10	13,000,000
Spain	7½	10,000,000
Great Britain	7	9,000,000
African and rehandling	3½	4,500,000
Miscellaneous export, Belgium, etc	5½	7,000,000
Total	100	130,000,000

GRADES AND PRICES IN THE CLARKSVILLE AND PADUCAH DISTRICTS.

Since 1904 a considerable portion of the "black-patch" production has been pooled and sold through the agency of the Planters' Protective Association. The following schedule of prices fixed by the association for the sale of the 1908 crop is of interest in throwing light on the comparative value of the different grades into which the tobacco of this district is usually classed in reassorting after it gets into the hands of dealers, although the farmer usually finds it sufficient to assort his individual crop into only about three grades. In considering these prices it should be remembered that they represent figures

considerably above the normal farm price. The grades established and prices set for the specified grades are shown in Table XI.

TABLE XI.—*Schedule of prices, by grades, set by the Planters' Protective Association for the sale of the pooled 1908 crop, representing over 50,000 hogsheads of the Clarksville and Hopkinsville and the Paducah types of leaf.*

Grades.	Price per 100 pounds.	Grades.	Price per 100 pounds.	Grades.	Price per 100 pounds.
Plug wrappers:		Spinning leaf:		French and Belgian:	
Fancy	$18.00	Fancy	$16.00	A's	$12.00
Fine	17.00	Fine	15.00	B's	9.50
Good	16.00	Good	13.50	B–C's	9.00
Medium	14.00	Medium	12.00	C's	8.50
Common	12.00	Common	10.50	C 2's	8.00
Austrian:		African:		Spanish:	
A's	17.00	Fancy	12.00	A's	10.00
B's	15.00	Fine	11.00	B's	9.50
B 2's	12.50	Good	10.00	C's	8.50
C's	12.00	Medium	9.50	Lugs:	
C 2's	11.00	Common	9.00	Fine	9.00
Italian:		Snuffers:		Good	8.00
A's	15.00	Fine	12.00	Medium	7.00
B's	14.00	Good	11.00	Common	6.50
B 2's	13.00	Medium	10.00	Low	6.00
C's	11.00	Common	9.00	Trash	4.00–5.00
C 2's	9.50				

THE HENDERSON OR "STEMMING" DISTRICT.

The Henderson subdivision of the dark-fired tobacco district produces a type of leaf particularly suited to the British trade. In the past a large proportion of it has been stemmed before shipment, which fact gave rise to the name "Stemming" as applied to the district. It is a rather coarse tobacco of large leaf, which makes it strip to advantage, and it has good absorptive capacity, which gives an opportunity for a considerable increase in weight after having passed the British customs as nearly as possible at the prescribed 10 per cent moisture basis. Figure 19 shows long and short English strips of the Henderson type.

The annual production of the "Stemming" district is approximately 35,000,000 pounds, distributed about as shown in Table XII.

TABLE XII.—*Estimated annual production of the Henderson or "Stemming" district, distributed by counties.*

Counties.	Pounds.	Counties.	Pounds.	Counties.	Pounds.
Henderson	10,000,000	Union	3,000,000	Muhlenberg	1,000,000
Webster	7,500,000	Caldwell	1,500,000		
Hopkins	6,000,000	Livingston	1,000,000	Total	35,000,000
Crittenden	4,000,000	Lyon	1,000,000		

About 50 per cent of the product of the district is handled through Henderson, which is the important market town of the district. Other important receiving points are Providence, Madisonville, Princeton, and Nebo.

The principal purchasers of this type of tobacco have large establishments for stemming and redrying the leaf or strips for export at Henderson and the other important market towns of the district. The quantity of tobacco stemmed before shipment has recently been reduced to a small proportion.

Probably 90 per cent of the entire product of this district goes to Great Britain, or about 30,000,000 pounds when the normal crop of 35,000,000 pounds is produced. The Italian Régie sometimes takes 2,000,000 or 3,000,000 pounds from this district, which, together with a miscellaneous foreign demand, might easily make up the remaining 5,000,000 pounds not taken by Great Britain.

FIG. 19.—English strips, long and short, dark-fired tobacco, Henderson or "Stemming" district, Kentucky. (Photographed by the Bureau of Soils.)

The territory covered by the dark-fired districts of Virginia, Kentucky, and Tennessee, including their several subdivisions, is shown on the maps (Pls. I and II, in pocket).

THE MARYLAND OR BALTIMORE TYPES OF TOBACCO.

As already stated, the beginning of the production of tobacco in Maryland was almost coeval with the beginnings of its production in Virginia, and it is thus one of the oldest types produced in this country. In the early days practically all the tobacco produced was exported. Maryland, having a palatinate form of government and being to a large extent free from the domination of the British colonial policy, could ship tobacco to other than British ports. Much of the Maryland product, therefore, went direct to the Continent, particularly to Holland and France. The foreign demand for Maryland tobacco was thus established at a very early date and has persisted to the present time. The tobacco of the Maryland or

Baltimore types is nearly all exported, and France and Holland remain, as in the early days, the most regular, dependable, and important customers. The tobacco included under this head is the annual product of three districts, as follows:

	Pounds.
Southern Maryland	17,000,000
Upper-county Maryland or Bay	1,000,000
Eastern Ohio export	3,000,000
Approximate total	21,000,000

The tobacco of each of these three districts is marketed through Baltimore. The trade generally speaks of Maryland tobacco in terms of hogsheads, which average about 700 pounds net weight each. The average annual production of the three districts amounts to not far from 30,000 hogsheads. About 90 per cent of this tobacco is exported and 10 per cent used in domestic consumption.

In domestic consumption Maryland tobacco is used to some extent in the manufacture of low-grade cigars, the quantity utilized for this purpose varying considerably each year, depending upon the relation between the prices of tobacco of these types and of the regular cigar types. In the last few years also, owing to the high price of Burley, there has been a considerable increase in the quantity of the Baltimore types taken for domestic consumption to substitute for Burley, particularly from the upper-county and eastern Ohio grades where Burley seed is quite generally used.

DISTRIBUTION IN USE.

A good idea of the market distribution of Maryland tobacco may be had from the annual trade review of the Baltimore tobacco market issued by Van Kapff & Arens, under date of January 3, 1910, covering the previous year's transactions, an extract from which is shown in Table XIII.

TABLE XIII.—*Distribution of Maryland and (eastern) Ohio tobacco in 1909.*

Where distributed.	Hogsheads.	Where distributed.	Hogsheads.
France	10,316	Italy	125
Holland	11,792	England and North Europe	91
Bremen	1,330	Home consumption	4,243
Hamburg	1,141		
Antwerp	848	Total	29,886

Much the larger portion of these Baltimore types of tobacco is air-cured. All of the southern Maryland type is air-cured, which is in itself nearly 80 per cent of the total, and in late years all but a very small proportion of the upper-county product has been also air-cured. Originally this upper-county tobacco, generally spoken

of as Bay tobacco, was nearly all cured by open fires in rather small, tightly daubed log barns. The cured product, therefore, had a characteristic smoky odor and flavor similar to the dark-fired tobacco of Virginia, Kentucky, and Tennessee. The resemblance ceased here, however, as this Bay tobacco, as well as that of southern Maryland and eastern Ohio, was characteristically light in color and body and deficient in strength and richness, as the dark-fired was characteristically heavy in body, dark in color, and very rich in so-called oil and gum. In earlier years the southern Maryland tobacco was, to a considerable extent, cured or at least dried out by open fires, but the practice there has been abandoned. A characteristic southern Maryland curing barn is shown in figure 20. A sample of Maryland colory leaf export tobacco is shown in figure 21.

The eastern Ohio tobacco district was settled in the years succeeding the Revolutionary War, principally by pioneers from Maryland, who carried the production of tobacco with them just as the pioneers from Virginia and North Carolina carried the production into Kentucky and Tennessee. Naturally they carried the seed and methods of producing tobacco in Maryland with them and they continued to market the tobacco through Baltimore, the market with which they were most familiar and where the type of tobacco which was thus produced could be marketed to the best advantage.

Eastern Ohio tobacco is often spoken of as spangled tobacco from its characteristic of curing up in blotched areas over the leaf, changing sharply from a clear straw yellow to a clear brown or red, that is, it is a two-colored tobacco. The yellow colors are most desired and bring the highest prices. The tobacco is classed as yellow spangled when the much-desired clear yellow color predominates and as red spangled when the red predominates.

Eastern Ohio tobacco is typically a fire-cured tobacco, but flues made of loosely laid-up stones are generally used instead of building open fires on the ground within the barn. In this way the fires are made and kept up from the outside, but the smoke escapes inside, giving the tobacco a smoky or creosotic odor and flavor. In later years sheet-iron flues have been substituted for the rock flues to some extent and the process of curing is similar to the method pursued in the bright belt of eastern North Carolina and South Carolina. As in the new section of the bright belt also, the crop is harvested by picking the leaves from the stalks as they ripen in the field, but they are strung with a needle and string and placed on a scaffold outside the barn for a day or two to yellow before being placed in the barn and the fires started. As an aid in producing brighter colors, the eastern Ohio growers plant the tobacco very thickly, about 10,000 plants to the acre, and top very high,

or often not at all, so that at harvest time the tobacco field is a veritable flower garden of seed heads in bloom.

Rather high topping and close planting is resorted to in the Maryland tobacco districts proper in order to keep the colors brighter, but not to the same extent as in the eastern Ohio district. In Maryland, moreover, the entire plant is harvested and cured, being severed close to the ground and speared on the sticks about as practiced in most of the cigar-tobacco districts. In recent years the proportion of air-cured tobacco produced in eastern Ohio has increased greatly, owing particularly to the scarcity and high price of Burley, and more than half of the crop is now air cured and moves to market not through Baltimore, but through Cincinnati or Louisville. The fire-cured portion of the crop, however, continues

FIG. 20.—Maryland tobacco-curing barn, Upper Marlboro, Prince Georges Co., Md.

to be sold in Baltimore and during the past few years has ranged from 2,000 to 6,000 hogsheads a year.

The production of all these Baltimore types of tobacco has tended in later years to decrease rather than to increase, and the output now ranges considerably below the maximum attained in the periods just before and just succeeding the Civil War. In the seventies Maryland proper produced annually from 35,000 to 40,000 hogsheads, instead of 25,000 as at present, and eastern Ohio produced 15,000 to 20,000 hogsheads, instead of 4,000 as at present. In 1874 the eastern Ohio production marketed through Baltimore, which included practically all of it, was 28,000 hogsheads. The cause of this decrease in production has not been due to actually lower prices on the average, but rather to an increasing cost of

production and to the diversion of attention to other crops which have proved more profitable. In the eastern Ohio section, the development of the petroleum industry also proved a diverting influence, as lands were more valuable for oil wells than for farming.

The Baltimore types of tobacco are valuable as a whole because of their color, good burning qualities, and fineness. For these qualities they are desired by European countries, where they are much used to mix with other tobacco to make the appearance of the latter more attractive and to help the combustion of bad-burning tobaccos. Aside from these qualities, the Baltimore types are rather weak, dry,

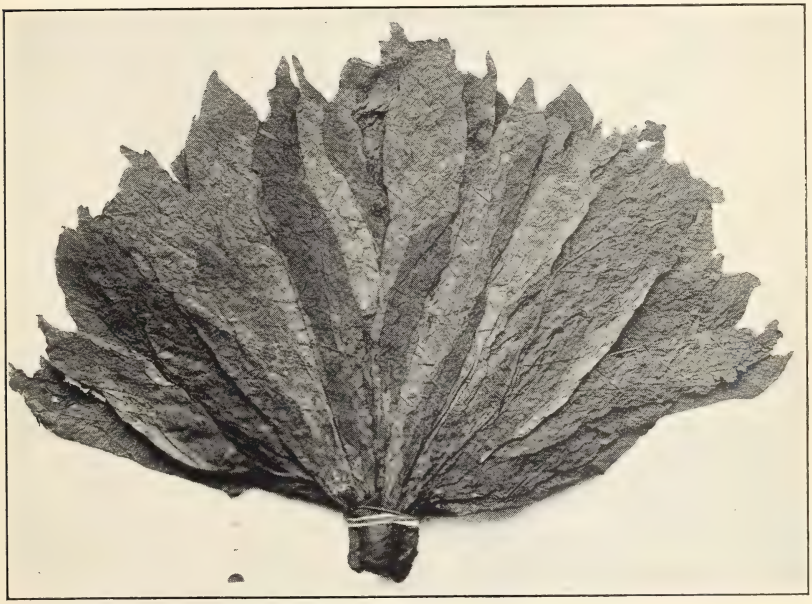

FIG. 21.—Maryland fine colory leaf export tobacco, showing how hands are fanned out in packing. (Photographed by the Bureau of Soils.)

and characterless tobaccos. They are used almost exclusively for pipe smoking and for cigarettes.

In general appearance the Maryland tobacco more nearly resembles Burley than any other important type, both in color and in general appearance, but it does not possess such good absorptive capacity for sauces or other liquids, and has not quite as good life and body. Indeed, Burley seed is used extensively both in the upper-county Maryland district and in the eastern Ohio district.

Until recently about 10 per cent of the eastern Ohio tobacco was produced across the river in West Virginia, particularly in Jackson and Wood Counties. Recently, however, the production of the fired, spangled tobacco in West Virginia has been greatly reduced and the tobacco now produced there is nearly all ordinary air-cured Burley.

GRADES AND PRICES.

The Maryland types of tobacco as a whole are produced on rather light soils, ranging from loamy clays to those that are quite sandy. They are very easy to work. Most colory tobaccos are produced on the lighter class of soils. Holland takes most of the highest colored tobacco and pays the best price, sometimes as high as 15 or 16 cents a pound for the air-cured types. The best fired bay and spangled tobaccos often bring from 18 to 20 cents or more a pound and go principally to brokers in the open markets of Germany (Bremen and Hamburg) for final distribution to the manufacturers of northern Europe. France takes more of the red grades.

The general average price for Maryland tobacco has been about 5½ to 6½ cents a pound. The last few crops, however, owing to the generally higher price level for all tobaccos, have commanded a somewhat better price, the Baltimore market averaging about 7 cents in 1908 and a little better than that in 1909. Under this influence the acreage in Maryland has shown a tendency to expand, but scarcity of labor and higher prices for other products as well have been offsetting factors.

DISTRIBUTION OF ACREAGE.

The Maryland tobacco crop proper is produced entirely in the five southern counties of the State, mostly south of a line connecting Baltimore and Washington, D. C., including the peninsula between Chesapeake Bay and the Potomac River. Table XIV shows the approximate distribution of the annual production.

TABLE XIV.—*Estimated annual production of the Baltimore types of tobacco, distributed in the 5 counties.*

Counties.	Pounds.	Counties.	Pounds.
Prince Georges	4,500,000	Calvert	3,250,000
Charles	3,500,000	Anne Arundel	2,500,000
St. Marys	3,250,000		
		Total	17,000,000

The larger portion of Maryland tobacco is marketed in the summer and fall of the year following that in which it is grown. It is shipped in hogsheads to a considerable extent by water from the numerous wharves on the rivers and inlets abounding on both the Chesapeake and Potomac side of the peninsula. Maryland tobacco is not redried prior to shipment abroad after being purchased from the farmers, and it is therefore necessary that the tobacco have some age and be thoroughly dried out and conditioned before it is marketed. It is generally exported in the original hogsheads as sent in by the farmers.

It is common to see on the roads of southern Maryland a load consisting of one or two hogsheads of tobacco drawn by oxen or horses, as shown in figure 22.

Upper-county or bay tobacco is produced principally in the central and northern part of Montgomery County, the area extending, however, into Howard, Carroll, and Frederick Counties. The production of this section amounts to nearly 1,000,000 pounds yearly. Mount Airy is the most important shipping point for this district.

The eastern Ohio export district includes portions or all of Belmont, Guernsey, Noble, Monroe, and Washington Counties. The proportion of fired tobacco is much greater in the northern portion of the area. In the southern portion the percentage of regular air-cured Burley is large. The principal point for shipping the export tobacco

FIG. 22.—Hauling prized tobacco to railroad station for shipment. A scene particularly common in portions of the Burley district, in the Maryland tobacco district, and where farmers prize and ship in hogsheads.

is Barnesville, in Belmont County. Several firms there buy leaf from the farmers, usually at a round price, and then grade and condition the tobacco for shipment to Baltimore commission houses, which effect the final sale to the exporter.

The approximate outlines of the Maryland tobacco districts and the eastern Ohio export district are respectively shown on Plates I and II (in pocket).

FLUE-CURED TOBACCO.

ORIGIN AND EARLY DEVELOPMENT.

Flue-cured tobacco, as it is known to-day, is essentially a modern type. Its development has taken place principally since the Civil War and its most rapid development, particularly in the New Belt

section of eastern North Carolina and South Carolina, has been since 1890. Its maximum production was reached in 1903, when the flue-cured crop exceeded 250,000,000 pounds, according to estimates of competent members of the tobacco trade based on market reports.

Although a modern type in its present development, flue-cured tobacco was in its origin closely associated with the old Virginia dark type and is a development and offshoot from it, dependent upon soil modification and trade preferences. As the cultivation of tobacco in Virginia was pushed back upon the poorer sandy lands of the southern tier of counties of the State, the character of leaf produced was naturally modified, particularly in color and mildness. It became very popular for home manufacture and consumption, particularly in the shape of plug for chewing purposes. To make it more acceptable for this purpose the use of open fires in curing was limited as much as possible, and much of the product of this sandy type of soil was merely air cured, fires being used only to protect it from damage in bad weather. In order to keep down the odor of smoke, charcoal was often substituted for wood. The use of charcoal for curing finally became a regular practice, until superseded by the use of rock flues and finally by sheet-iron flues, which still further did away with any tendency to smokiness and gave more satisfactory results, particularly in obtaining brighter and more uniform colors and greater economy of fuel and convenience in firing.

Under the perfected flue system of curing it is possible, with tobacco produced on certain soil types, to make beautiful and uniform curings of a very bright, clear, straw, or lemon yellow color with hardly a vestige of brown or green shade, the stem often being as bright and clear as the leaf itself.

On the right soils, moreover, these flue-cured types often possess good life and body and fineness of fiber, and it is this combination of color, body, and fineness, with medium to good size of leaf as a necessary secondary qualification, usually not difficult to obtain, that constitutes the fancy grades of the flue-cured type that bring farm prices ranging from 20 cents up to 40 or 50 cents a pound.

The following story of the evolution of "yellow" tobacco is obtained from an account written many years ago by the late Maj. R. L. Ragland, of Halifax County, Va., himself a noted grower and a well-posted man regarding the tobacco industry. He states that particular attention was first attracted to the light-colored piebald or mottled tobacco of Virginia and North Carolina soon after the War of 1812 to meet an export demand for such types from France, and that in the export trade the type was called "French" tobacco. Furthermore, the domestic manufacture of tobacco (principally plug) began to expand about this time and these mild, light types

also came into greater demand for that purpose. Planters with suitable soils, particularly freshly cleared fields of a gray or sandy nature so common in the border counties of central Virginia and North Carolina between the coastal plain and the Blue Ridge, vied with each other in producing the highest colored sweet and mild tobaccos.

The method of curing first in use was to begin with small open fires to be continued until the leaf was properly yellowed and then increase the fires steadily and cure up the leaf as yellow as possible with open wood fires. Maj. Ragland thought that charcoal was first made use of in curing this type about 1824 in Caswell County, N. C., the honor lying between Capt. Abishai Slade and Mr. William Long. Maj Ragland also states that Dr. Davis G. Tuck, of Halifax County, Va. was the first to use flues in curing tobacco and was granted a patent therefor in 1829. Because of the defective plan of construction, however, these flues were very liable to burst in use, and they never came into general use until about the time of the Civil War and after the plan of construction had been improved.

Maj. Ragland speaks also of attending a meeting of tobacco growers in 1850 at Cluster Springs, Halifax Co., Va., to listen to an address by Capt. Slade on coal curing yellow tobacco. Up to 1850 the production of yellow tobacco was small and confined principally to Caswell County, N. C., and Pittsylvania County, Va.

Figure 23 shows a typical field of tobacco of the fine flue-cured type grown on freshly cleared land, which generally yields the brightest and finest textured leaf. Figure 24 shows a standard type of flue-curing barn which has been in use in the Old Belt section.

IMPORTANCE OF FERTILIZERS IN STIMULATING PRODUCTION.

An important factor in making the rapid development in production of the flue-cured type possible since the Civil War was the introduction of commercial fertilizers.

Bright tobacco soils as a class are naturally rather infertile. Before the use of artificial manures became general in the seventies of the last century the portion of the country now noted for the production of the fine flue-cured leaf was but little farmed. On most of these soils crop yields including those of tobacco were so small without fertilizer that it did not pay to cultivate them. They were, however, light and friable and of a character to respond readily to fertilizers, particularly in producing a high-value crop like tobacco. The use of fertilizers increased the chances of profit from growing tobacco in two ways. It markedly increased the yield, often more than 100 per cent, and also improved the quality greatly, so that the tobacco

would sell for a higher price per pound. Many soils which with fertilizers would produce a good yield of fine tobacco at a satisfactory

FIG. 23.—Field of "fresh land" tobacco of the flue-cured type in the Old Belt district, Pittsylvania County, Va.

FIG. 24.—Typical flue-curing tobacco barn, Old Belt section, Pittsylvania County, Va. The pile of wood is for burning in the furnaces.

profit would produce almost nothing without them. The use of fertilizers was, therefore, a most potent factor in rendering possible the

great development in the production of bright flue-cured tobacco. There are to-day no other types of tobacco on which fertilizers are so freely used as on the bright flue-cured types, except on some of the high-priced cigar-wrapper types in New England and Florida.

USES OF FLUE-CURED TOBACCO.

DOMESTIC CONSUMPTION.

In the early days, before the Civil War and soon after, the forerunner of the present flue-cured type was principally an air or "coal" cured product. It was mostly red, mahogany, or piebald in color and was manufactured largely into domestic plug for chewing. It was very acceptable for this purpose and made a mild, sweet, aromatic chew.

The manufactures of this type of plug had not then developed the present system of brands nor was it so concentrated in a few large factories as at present, and the business was divided up among a comparatively large number of independent factories in the larger towns scattered throughout the growing districts.

The product of these factories was distributed largely by wagons, which would make long trips into nonproducing sections, peddling out the manufactured product at the crossroad stores. On the return trip these wagons would pick up such merchandise as might be handled to advantage in the home town. Petersburg, Lynchburg, Farmville, Clarksville, South Boston, Danville, and Bedford City were among the more noted of these local centers for the manufacture of plug chewing tobacco; but the business of nearly all of these towns in this class of tobacco has diminished greatly under modern conditions, and some of them are now almost completely out of the tobacco-manufacturing business.

The primary cause which has led to the decadence of these local independent factories is the concentration of manufacturing in the hands of a few large firms with large city factories.

The business of manufacturing flue-cured plug, generally known as flat plug to distinguish it from the thicker, more heavily sweetened Burley plug made in the West, is now largely concentrated in Winston Salem, N. C., where the manufacture of tobacco has had a very rapid development. The industry was in its infancy in the early seventies of the last century. The quantity manufactured now amounts to upward of 40,000,000 pounds of tobacco annually and in gross output Winston ranks second only to St. Louis, Mo., among the great manufacturing centers of the country. A few million pounds of flue-cured plug are also manufactured at Reidsville, N. C., and at Martinsville, Va.

The manufacture of this class of plug is still one of the most important uses of flue-cured tobacco. The grade of tobacco used for this purpose is the heavier bodied, thoroughly ripened, red and mahogany filler leaf produced principally in the western portion of the flue-cured belt in the Piedmont section of Virginia and North Carolina.

Figure 25 shows chewing leaf, plug, and twist tobaccos in various stages of manufacture. Flue-cured tobacco and bright tobacco are often spoken of as being synonymous. Much flue-cured tobacco, however, particularly that best suited for plug filler, as grown in the western portion of the Old Belt known as the Winston-Salem and Martinsville district, can at best be classed as no more than semi-bright, and much of it is red or dark mahogany.

Another important use to which flue-cured tobacco is put is in the manufacture of granulated smoking tobacco, which, in fact, probably

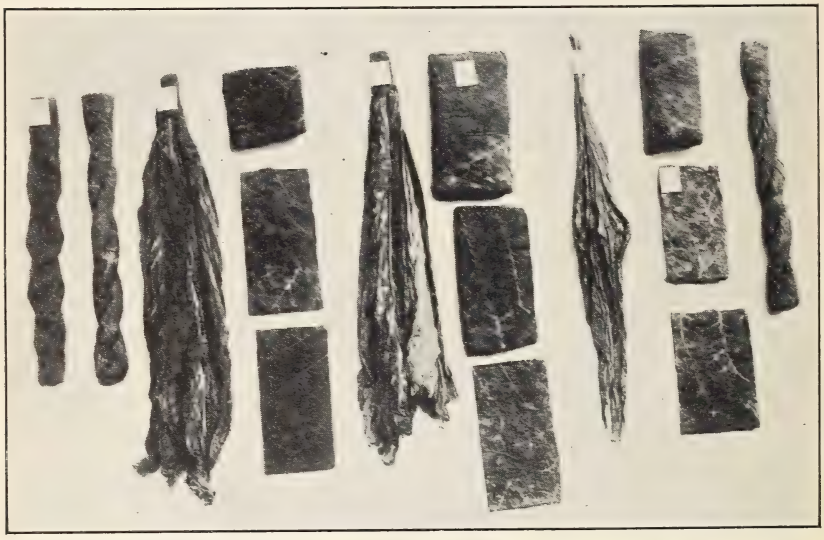

FIG. 25.—Stages in the manufacture of chewing, twist, and plug tobaccos. (Photographed by the Bureau of Soils.)

utilizes a greater number of pounds of this type of leaf than any other single use. On the market the leaf suitable for granulating is generally spoken of as "smokers" and consists principally of the light-bodied, "poor" leaf and scrap obtained from the bottom of the plant. It is obtained from all portions of the flue-cured district.

The great center for the manufacture of granulated smoking tobacco is Durham, N. C. The output of granulated smoking tobacco in Durham is more than 30,000,000 pounds annually.

The extensive use of this granulated form of smoking tobacco has developed almost entirely since the Civil War, and this fact, together with the nearly simultaneous development of the machine-made

cigarette, in a great measure accounts for the rapid spread of the production of the flue-cured type of tobacco. In the early days the tobacco was granulated or flaked by means of flails or sticks, now of course superseded by special granulating machinery.

Flue-cured tobacco is also used extensively in the production of machine-made cigarettes and is the most important type of tobacco for this purpose produced in the United States. The cigarette grades, generally designated as cigarette cutters, are ranked among the better grades of leaf. They must be sound and must possess good life and oil as well as good color and fineness of fiber, but do not need to possess quite the body and toughness necessary in a plug wrapper.

This district also produces a large percentage of the leaf used in wrapping plug, both of the flat Winston Salem type and of the western type made from heavily sweetened Burley. These plug wrappers constitute the highest grades of flue-cured tobacco and bring from 25 to 50 cents a pound, according to the supply and to the body fineness and color of the leaf itself. The middle section of the flue-cured district from Henderson, N. C., to Danville, Va., produces the largest percentage of leaf suited for plug wrappers. Specially noted sections producing a high grade of wrapper leaf are the Dutchville district of Granville County, N. C., and the White Oak Mountain district of Pittsylvania and Halifax Counties, Va. About 60 per cent of the total flue-cured crop is used in domestic consumption.

EXPORT DEMAND.

While the flue-cured type of tobacco is particularly adapted for manufacture and use in domestic consumption and is most extensively used at home, it is, nevertheless, also a favorite export type, with a constantly expanding foreign market. It is about the only type of tobacco produced in this country which has tended in recent years to decidedly increase the volume of our exports of leaf tobacco. This export trade would probably increase more rapidly were it not for the sharp competition of domestic demand, resulting in relatively high prices as compared with the other export types.

Great Britain and the British possessions, Canada, South Africa, and Australasia, are by far the most important foreign customers for this type of tobacco. These countries use it principally for smoking tobacco and cigarettes. China, Japan, and some of the European countries also make use of this type in considerable quantities.

The trade reports of the principal markets of Great Britain indicate that that country alone takes from 45,000,000 to 50,000,000 pounds of our flue-cured type of leaf annually.

In the foreign trade flue-cured tobacco is often spoken of as Virginia leaf or strips, probably because in the past, as is also still largely true, it was exported in great part through the markets of Virginia, particularly Richmond and Danville, although, of course, North

Carolina produces far more flue-cured leaf than does Virginia, as indicated in Table XVII (p. 68). Figure 26 shows an interior view of a leaf factory at Greenville, N. C., engaged in the making of strips for export to England.

DISTRIBUTION IN USE.

Estimating the total average production of flue-cured tobacco in the Old Belt and in the New Belt at about 215,000,000 pounds annually, it would be interesting to know how this tobacco is distributed in the trade according to the uses to which it is put. No figures can be quoted giving this information in an accurate statistical way.

FIG. 26.—Stemming room of a leaf-tobacco factory, Greenville, N. C. New Belt flue-cured type of leaf. (Photographed by the Bureau of Soils.)

However, making use of revenue returns, export figures, trade reports, and of general information picked up here and there, the following estimate of distribution may be accepted as substantially correct:

TABLE XV.—*Estimated distribution in use of flue-cured tobacco.*

Kind and location.	Pounds.	Kind and location.	Pounds.
Domestic use:		Export—Continued.	
Granulating	55,000,000	Australasia	8,000,000
Plug filler and cut plug	37,000,000	China	10,000,000
Cigarette cutters	25,000,000	Japan	2,000,000
Plug wrappers	10,000,000	Miscellaneous (Europe, South Africa, etc.)	10,000,000
Total	127,000,000	Total	88,000,000
Export:			
Great Britain	48,000,000	Grand total	215,000,000
Canada	10,000,000		

GRADES AND PRICES.

At 10 cents a pound, which is about the average for the five years ending in 1910, the flue-cured type of tobacco has brought to growers the sum of about $20,000,000 annually. Growers claim, however, that counting all factors in connection with the expense of producing flue-cured tobacco, it costs about 10 cents a pound to raise it.

The price schedule put forth by the Interstate Tobacco Growers' Protective Association of Virginia and North Carolina, given in Table XVI, throws some light on the various market grades into which the flue-cured type of tobacco is divided and the approximate relative prices of each. It should be borne in mind, however, that they are based upon a price level to the farmer fully 2½ cents a pound above that which has been current in recent years.

TABLE XVI.—*Scale of prices adopted by the Interstate Tobacco Growers' Protective Association of Virginia and North Carolina for the sale of their pooled holdings of flue-cured tobacco in October, 1904.*

Grades.	Price per 100 pounds.	Grades.	Price per 100 pounds.	Grades.	Price per 100 pounds.
Lemon wrappers:		Mahogany fillers:		Cutters (cigarette):	
Fine	$65.00	Fine	$22.50	Fine	$35.00
Good	50.00	Good	18.00	Good	30.00
Medium	35.00	Medium	15.00	Medium	22.50
Common	25.00	Common	10.00	Common	18.00
Orange wrappers:		Dark red fillers:		Bright smokers:	
Fine	60.00	Fine	16.00	Fine	18.00
Good	50.00	Good	14.00	Good	15.00
Medium	35.00	Medium	12.50	Medium	12.50
Common	20.00	Common	10.00	Common	10.00
Bright mahogany wrappers:		Dark fillers:		Heavy smokers:	
Fine	55.00	Fine	16.00	Fine	16.00
Good	40.00	Good	12.50	Good	14.00
Medium	30.00	Medium	10.00	Medium	12.00
Common	18.00	Common	8.00	Common	10.00
Dark mahogany wrappers:		Tips:		Lug fillers:	
Fine	40.00	Bright	12.50	Fine	16.00
Good	25.00	Dark	9.00	Good	14.00
Medium	22.50	Green	6.00 to 8.00	Medium	12.50
Common	18.00			Common	10.00
Bright fillers:		Export leaf (bright):		Trash:	
Fine	20.00	Fine	35.00	Low grades and trash	5.00 to 9.00
Good	17.00	Good	30.00		
Medium	15.00	Medium	22.50		
Common	10.00	Common	18.00		

FLUE-CURED TOBACCO AT THE PARIS EXPOSITION OF 1900.

At the Paris Exposition of 1900 our flue-cured bright leaf was considered by the jury of awards in comparison particularly with Turkish leaf, which is generally regarded as a distinctly cigarette type of tobacco. Mr. M. L. Floyd, the only member of this jury from the United States, reported that the jury was inclined to favor the Turkish leaf from the standpoint of quality. The bright, flue-cured leaf, however, is yet of very satisfactory quality even as a

cigarette tobacco, and in addition it is susceptible of a much broader field of usefulness. Because of this much greater all-round usefulness and adaptability, the jury finally gave it the same award as the Turkish leaf, ranking them on an equal basis of merit and both were granted gold medals.

SUBDIVISIONS OF THE FLUE-CURED DISTRICT.

Broadly speaking, two quite well-defined subdivisions of producing area, reflected in a material modification in the general character of the tobacco produced, are recognized in the flue-cured territory, extending as it does from the piedmont and even the mountain section of western North Carolina and eastern Tennessee to the coast country of eastern North Carolina and South Carolina.

Up to the late eighties of the last century flue-cured tobacco was not produced in commercial quantities of importance east of Warren, Franklin, and Wake Counties in North Carolina, and the easternmost market town of importance for the sale of leaf tobacco was Henderson, N. C.

It was, however, grown even farther westward in the mountain section than at present. In the eighties of the last century the production of flue-cured tobacco had a considerable boom in some of the counties of east Tennessee and in the southern part of West Virginia. Buncombe and Madison Counties, N. C., were then quite heavy producing counties and Asheville and Marshall in these two counties, respectively, were important leaf markets. Greenville and Bristol, across the State line in Tennessee, also developed into market points of considerable importance.

The production of flue-cured tobacco has long since been abandoned in West Virginia and Burley now holds sway there. But little tobacco is now produced in the extremely hilly counties of western North Carolina, and Asheville and Marshall are no longer leaf markets.

In Greene County, Tenn., however, a considerable interest in tobacco growing still persists and the production has been something like 1,000,000 pounds annually for some years. In 1908 and since then, owing to the extremely high prices of Burley, the total tobacco acreage in eastern Tennessee subsidiary to Greenville as a market center has greatly increased. The estimated production in 1909 was from 3,000,000 to 5,000,000 pounds, less than half a million of which, however, was estimated to be of the flue-cured type, the interest having shifted to Burley. Bristol, which in its best years sold about 5,000,000 pounds of tobacco, has long since ceased to be a market.

All of the present flue-cured territory in Virginia and in western and central North Carolina to and including the counties of Warren, Franklin, and most of Wake is generally known among tobacco

people as the "Old Belt" section. The line is of course more or less arbitrary, but it quite closely represents the approximate eastern limits of tobacco growing prior to the great expansion eastward which took place from 1885 to 1890, and also represents in broad outline the approximate division point between the New Belt and the Old Belt tobaccos in point of quality.

The Coastal Plain sandy soils of the New Belt section produce a brighter type of leaf, but generally with less body and substance than do the soils of the Old Belt with their greater percentage of clay, particularly in the subsoil.

Modifications in methods of cultivation and handling in the two regions are characteristic, particularly in the matter of priming, topping, harvesting, and curing. In the Old Belt section the plants

FIG. 27.—Common method of hauling tobacco from the field in the Virginia tobacco districts.

are topped lower and generally a few bottom leaves are primed off and discarded at topping time, usually leaving only about 10 leaves to each plant to mature. In the New Belt section higher topping is practiced, that is, more leaves are left on the plant. In the Old Belt also, the whole plant is cut and cured at one time while in the New Belt it is customary to pick the leaves a few at a time as they ripen, beginning at the bottom of the plant and going up. Other modifications of method might also easily be noted in the two sections. Figure 27 shows the method of harvesting tobacco in the Old Belt section, the whole plant being harvested and hung on the stick, while figure 28 shows a harvesting scene in the New Belt section. The separate leaves are harvested and fastened to the sticks in small bundles with strings.

A number of reasons conspired to bring about the rapid introduction and extension of tobacco growing into eastern North Carolina and South Carolina in the last decade of the nineteenth century. Among these reasons the low price of cotton is noteworthy. The entire New Belt section is a cotton-producing country and any decided shifting in the balance between the price of cotton and tobacco is quickly reflected in the acreage and production of tobacco. The production of New Belt tobacco from year to year is therefore subject to extreme fluctuations amounting to doubling the crop in some instances and halving it in others. In 1903, when the maximum of production was reached in the New Belt, the crop was estimated at over 125,000,000

FIG. 28.—Stringing the leaves of tobacco of the flue-cured type in the New Belt section near Greenville, Pitt Co., N. C.

pounds; in 1904, under the influence of very low prices for tobacco and high prices for cotton, it was less than 60,000,000 pounds.

Cotton is not grown to any considerable extent, however, in the Old Belt section and the tobacco crop, therefore, is very much more uniform from year to year in regard to acreage, as no other money crop is available to which the acreage can readily be shifted. Although the Old Belt crop of 1903 was also large, amounting to about 125,000,000 pounds with correspondingly low prices, the crop of 1904 was only about 10,000,000 pounds less than in 1903.

Although the New Belt crop of tobacco exceeded that of the Old Belt in 1903, it is normally about 25,000,000 pounds a year less than the Old Belt. The normal production of the Old Belt district at the present time stated in round numbers is about 120,000,000 pounds,

and that of the New Belt is about 95,000,000 pounds, making 215,000,000 pounds as the total annual production of tobacco of the flue-cured type.

Other important contributory causes for the rapid expansion of tobacco growing into the New Belt section in the decade mentioned was the rapid development and expansion in the demand for and consumption of granulated smoking tobacco and in the use of cigarettes, also the rapidly expanding foreign demand resulting in good prices for this type of leaf. This combination, therefore, of low prices for cotton and high prices for tobacco is the most important contributory cause of the rapid development of tobacco growing in the New Belt section.

A comparison of the census returns of 1890 with those of 1900 for the New Belt section of eastern North Carolina and South Carolina strikingly illustrates the rapid extension of tobacco growing in that decade. In 1890 the total production of the counties reporting tobacco in eastern North Carolina and South Carolina was 1,604,304 pounds, of which 1,381,406 pounds were in eastern North Carolina and 222,898 pounds in South Carolina. Of the total eastern North Carolina production more than half, 782,713 pounds, was produced in Nash County directly bordering the section designated as the Old Belt. Only two other counties in this section produced more than 100,000 pounds of tobacco each. They were Wilson and Wayne Counties with 232,966 and 112,010 pounds production, respectively.

The figures for the 1900 census show an amazing increase in this section. From less than 2,000,000 pounds total production of tobacco shown by the 1890 census, the figures for 1900 gave the New Belt section a production of 79,603,610 pounds, of which 59,707,640 pounds were produced in eastern North Carolina and 19,895,970 pounds in South Carolina. This great extension in production carried North Carolina ahead of Virginia and made it second only to Kentucky in total production of tobacco, which relative position the State has since continued to hold.

The maps (Pls. I and II, in pocket) show the approximate limits of the established producing territory for the flue-cured type of tobacco in 1909. The line separating the flue-cured type from the dark-fired type in Virginia is of course only an approximation. No definite line exists showing where one begins and the other ends. What really exists is a belt of country upon which can be found either type here and there, according to the character of the soil and the preference of the grower.

THE OLD BELT SECTION.

Table XVII gives a list of the counties in the Old Belt section of Virginia, North Carolina, and Tennessee that produce tobacco in important commercial quantities, with an estimate of the quantity

produced in each. Counties like Mecklenburg and Charlotte in Virginia produce considerable quantities of both the flue-cured and the dark-fired type. The estimate of such counties is for the flue-cured type only.

TABLE XVII.—*Estimated annual production of the flue-cured type of tobacco in the Old Belt section of Virginia, North Carolina, and Tennessee, distributed by counties.*

Counties.	Pounds.	Counties.	Pounds.	Counties.	Pounds.
Virginia:		North Carolina:		North Carolina—Con.	
Pittsylvania	16,000,000	Granville	7,500,000	Guilford	2,000,000
Halifax	14,000,000	Rockingham	7,000,000	Yadkin	1,000,000
Mecklenburg	7,500,000	Caswell	6,000,000	Wilkes	500,000
Henry	4,000,000	Person	5,500,000	Iredell	500,000
Lunenburg	4,000,000	Stokes	5,000,000	Tennessee:	
Franklin	3,500,000	Vance	5,000,000	Greene	500,000
Charlotte	2,000,000	Franklin	5,000,000	Scattered	500,000
Patrick	2,000,000	Alamance	4,000,000		
Brunswick	1,000,000	Wake	3,000,000	Total, North Carolina and Tennessee	65,000,000
Nottoway	500,000	Surrey	3,000,000		
Prince Edward	500,000	Durham	2,500,000		
		Warren	2,500,000		
Total for Virginia	55,000,000	Orange	2,000,000		
		Davidson	2,000,000		

Grand total, Old Belt section, 120,000,000 pounds.

This Old Belt section might be still further subdivided into the eastern and western subsection, or into the Winston Salem and the Danville subsections. The soil grows progressively more clayey as one proceeds westward, and the change is reflected in the quality of the tobacco produced. The western subsection is noted for the large proportion of leaf adapted for use as fillers for flat plug as manufactured so extensively at Winston Salem, N. C. Henry County, Va., and Stokes County, N. C., are particularly noted for the fine quality of fillers produced suitable for this class of plug.

The proportion of mahogany or red tobacco in this western subsection of the Old Belt is also much greater than in the eastern part. An approximate line separating the western from the eastern parts of the Old Belt would show Franklin and Henry Counties in Virginia and a part of Rockingham County in North Carolina and all west to the Blue Ridge in the western or Winston Salem subsection of the Old Belt section.

Danville, Va., Winston Salem, N. C., and South Boston, Va., are the most important first-hand markets for the Old Belt. These three markets sell from first hands fully 50 per cent of the total Old Belt productions.

THE NEW BELT SECTION.

Table XVIII gives a list of the important producing counties of the New Belt section, with estimates of average production.

TABLE XVIII.—*Estimated acreage of annual production of flue-cured tobacco in the New Belt sections of North Carolina and South Carolina, distributed by counties, and the total production in all districts of Virginia, North Carolina, South Carolina, and Tennessee.*

Counties.	Pounds.	Counties.	Pounds.	Counties.	Pounds.
North Carolina:		North Carolina—Con.		South Carolina:	
Pitt	12,000,000	Jones	2,000,000	Marion	5,000,000
Nash	8,000,000	Columbus	2,000,000	Darlington	5,000,000
Wilson	6,000,000	Bertie	1,750,000	Florence	3,500,000
Greene	6,000,000	Craven	1,500,000	Williamsburg	3,000,000
Lenoir	5,000,000	Sampson	1,000,000	Clarendon	2,500,000
Johnston	3,500,000	Cumberland	500,000	Dillon	2,000,000
Duplin	3,500,000	Beaufort	500,000	Horry	2,000,000
Robeson	3,500,000	Bladen	500,000	Lee	500,000
Wayne	3,000,000	Harnett	250,000	Sumter	500,000
Martin	3,000,000	Other counties	1,000,000	Georgetown	500,000
Halifax	2,500,000			Other counties	500,000
Wake	2,000,000	Total for New Belt of eastern North Carolina	70,000,000	Total for New Belt of South Carolina	25,000,000
Edgecombe	2,000,000				

	Pounds.
Total New Belt of eastern North Carolina and South Carolina	95,000,000
Total Old Belt	120,000,000
Grand total annual production of flue-cured tobacco for all districts of Virginia, North Carolina, South Carolina, and Tennessee	215,000,000

As in the case of the Old Belt section, the New Belt section might with some reason be again subdivided into two subsections representative of noticeable differences in the quality of the tobacco itself, broadly speaking, and of methods of cultivation and handling, particularly in respect to the manner of placing the tobacco on the market. As a whole the South Carolina soils are more sandy than those of the eastern North Carolina section, particularly the portion east of the Pedee River, resulting in some modifications of body and color in the tobacco produced.

The South Carolina product is on the whole perhaps paler in color and lighter in body, though this distinction of course would not hold for certain sections of South Carolina, particularly that portion west of the Pedee. The eastern part of Darlington County, in the vicinity of Montclare, and Clarendon County, in the Pudding Swamp neighborhood, are especially famed for the fine quality of leaf produced.

In the South Carolina section the growers have adopted the practice in the last few years of selling the tobacco ungraded and not tied into hands, although of course the very fact of priming the tobacco on the plant a few leaves at a time as they ripen makes for a certain degree of grading, since the ground leaves, middle leaves, and tops naturally fall more or less into curings by themselves. In 1909 it was estimated that fully 80 per cent of the South Carolina crop was sold in this way, ungraded, and not tied up. This practice serves still further to differentiate the South Carolina portion of the New Belt from the eastern North Carolina portion.

In noting the production by counties as shown in Table XVIII for eastern North Carolina it will be seen that the growing of tobacco almost ceases in Cumberland, Sampson, and Bladen Counties. This section of country is really the dividing line between the eastern North Carolina section as a separate district and the South Carolina section. The border counties, Robeson and Columbus, of North Carolina, are really more closely identified with the South Carolina district than with the eastern North Carolina portion of the New Belt.

The principal market centers of the New Belt are Wilson, Greenville, Kinston, and Rocky Mount in eastern North Carolina, and Mullins, Darlington, Lake City, and Timmonsville in South Carolina. These eight markets sell from first hands about 70 per cent of the total New Belt crop. The remainder is divided between a considerable number of small markets selling usually from 1,000,000 to 3,000,000 pounds each.

All things considered, this flue-cured type of tobacco is unsurpassed in universal popularity and general adaptability to a variety of uses, including granulated and cut smoking tobacco, both paper and all-tobacco cigarettes, and plug filler and wrapper; in fact it is adapted to practically all the regular forms in which tobacco is used except standard cigars and snuff. In color and general appearance it is very attractive, while its low nicotine content, mildness, aromatic sweetness, fragrance, and good keeping qualities render it very satisfying to the user.

The two subdivisions of the flue-cured district are outlined on the map (Pl. I, in pocket).

WHITE BURLEY TOBACCO.

ORIGIN AND EARLY DEVELOPMENT.

The cultivation of tobacco in Kentucky and Ohio was introduced by the pioneer settlers from Virginia and Maryland in the period succeeding the Revolutionary War. Many of these settlers occupied the lands along either side of the Ohio River.

Whether the development of Burley tobacco in this section was from the Maryland type of seed, like that of the eastern Ohio export tobacco, or from the Virginia type of seed, history does not make clear. Burley tobacco more closely resembles the tobacco of Maryland in general appearance than it resembles the Virginia type. This is true in point of general character, including body and color, and both are air-cured tobaccos, while the Virginia types, excepting the "sun-cured," are cured by artificial heat, either by open fires or by flues.

The origin of the name Burley is uncertain, but is said by some to be derived from the name of a grower or, perhaps, as others think,

it was so named for Lord Burleigh of England; in any event, a Burley tobacco was cultivated in this Ohio River section for some years prior to the Civil War. It was not, however, the White Burley as we now know it.

The development of the present type of White Burley, possessing the peculiar creamy-white color modification of stem, stalk, and veins, and also to a degree of the web of the leaf itself, took place, according to the present belief, as a mutation or sport. It seems pretty well established that White Burley originated on the farm of Mr. George Webb near the village of Higginsport, Brown Co., Ohio.

The following account of the origin of the new white tobacco, as it was called, written in 1875 by Mr. A. F. Ellis, who was a neighbor of Mr. Webb at the time, is quoted from the Western Tobacco Journal:

White Burley tobacco first made its appearance in the year 1864, near the village of Higginsport, Brown County, Ohio. In the spring of that year one George Webb procured from G. W. Barkley, of Bracken County, Ky., a small portion of tobacco seed of the kind then known as Little Burley. He sowed a part of this seed and grew a bed of fine-looking plants, but when ready to transplant found among them a few of a peculiar white or yellow color and, supposing them to be diseased or dwarfed plants, pulled them up and threw them away.

The next year, being scarce of seed, he sowed the remainder of this old seed and again found a portion of the same kind of plants that he had thrown away the year previous. This excited the curiosity of Mr. Webb and others, whose attention had been called to these strange-looking plants, and they were induced to transplant them, raising in all about 1,000 plants, which proved to be healthy and thrifty, and when fully ripe were almost of a cream color, making a great contrast with other tobacco.

The result of this experience created quite a sensation throughout the neighborhood and many growers came from every direction to see what they called a freak of nature. The tobacco cured a bright yellow or cream color, but was adjudged bitter to the taste. Some concluded that although the tobacco colored well and produced the pounds, on account of its bitter taste it would not be safe to plant any large portion of the next crop of this kind of tobacco, although considerable seed had been saved.

The plant beds that were sown of this seed in the year 1866 were found to contain a much larger portion of white plants than green ones, and a sufficient quantity were transplanted to produce 20,000 pounds of cured tobacco. Two hogsheads of this production were shipped to the Cincinnati market and sold at a high price. The purchaser shipped the same to the St. Louis Fair of 1867 and, after being awarded the first and second premuims for cutting leaf, sold it for $58 per hundred.

The remainder of this kind of tobacco was purchased by the firm of which I was a member, and entered at the Cincinnati Annual Tobacco Fair of the same year to compete for the best 10 hogsheads of any class, and awarded the third premium, and was afterwards sold for $34 per hundred.

The record thus made at the several tobacco fairs of 1867 induced many of the enterprising planters of Brown County, Ohio, and Bracken County, Ky., to plant largely of this kind of tobacco, and its culture has been gradually increasing throughout the entire district used for producing cutting tobacco until the present time, when it would be difficult to find any person in this large tobacco region so ignorant of his pecuniary interest as to plant any other kind.

The character of the soil that first produced the White Burley is strong, black, coarse river-hill land, and underlaid with limestone. The growth of timber cut from this land was principally sugar, lin, buckeye, ash, walnut, hickory, oak, and beech. Although it is well known to the country dealer that much the best quality of White Burley is grown on this kind of land, experience has satisfied us that any good, strong, old or new land that will produce any other class of cutting tobacco will produce this.

In 1867 I gave this growth of tobacco the name of White Burley, owing to its similitude in size and texture to the ordinary Burley, and to its almost white color when thoroughly ripe. The cultivation is the same as for any other cutting tobacco.

As this almost contemporaneous account indicates, the new white tobacco came first into prominence as a superior type for the manufacture of fine-cut chewing tobacco.

The Virginia type of plug, manufactured from the sweet air or coal cured tobacco of Virginia and North Carolina, had dominated the trade in chewing tobacco up to the breaking out of the Civil War. The war, however, completely demoralized this Virginia trade. In its place fine-cut chewing tobacco made from the Yellow Pryor type of leaf produced in the Mason County, Green River, and Missouri districts of the West and manufactured extensively in Cincinnati, Louisville, and St. Louis became very popular, as did also plug made from the Green River type of leaf. It was milder than the Virginia product and after the war the trade, except locally, did not go back to the Virginia fillers. But these new western products, fine cut and plug made from the western Yellow Pryor leaf, in turn had to give way to the new White Burley tobacco.

The unusual suitability of the White Burley for plug was not generally recognized, however, until the later seventies of the last century. The regular filler stock of the Green River type was very scarce and high in 1875 and some of the St. Louis and Jersey City factories tried in a small way some of the heavier red grades of Burley not suited for cutting stock, which were low in price from lack of demand. Consumers liked the new product and it proved especially pleasing to manufacturers because of the large quantity of cheap flavoring liquids which it would readily absorb. Some of these brands are reported to contain as much as 40 per cent of flavoring sauces.

The rapidity of this early development in the popularity and production of Burley may be illustrated by comparing the production of tobacco in Brown, Adams, and Clermont Counties in Ohio in 1870 and 1880. These three counties comprise the important Burley-producing section of Ohio. In 1869 they produced, according to the Census returns, 4,009,978 pounds of tobacco and in 1879 this was increased to 10,823,183 pounds, or more than 250 per cent. The normal production of Burley in these three counties, from 1905 to 1909, was about 13,000,000 pounds annually.

The White Burley strain of seed was also introduced into and rapidly extended in the neighboring counties across the river in Kentucky,

and, owing to a much greater area of suitable land, the production of White Burley in Kentucky soon far exceeded in amount that produced in the Ohio portion of the Burley district.

To-day, practically all of the Burley seed used is of this improved type. The name Red Burley is frequently used to-day, but refers more particularly to differences in the cured leaf from the same seed. Some leaves are redder, or more colory, than others, depending upon the soil, season, or other local conditions, often as they occur in the same field. This leads us to the consideration of the soil as a factor of importance, as it influences the color and other desirable features of Burley tobacco.

SPECIAL SOIL INFLUENCES ON PRODUCTION.

White Burley tobacco originated and has had its principal development on the phosphatic limestone soils of central and northern Kentucky and southern Ohio. They are as a whole among the richest in mineral plant food materials and among the most fertile soils to be found anywhere.

It is well known that the soil itself exerts a most important influence on the character of tobacco, but it is difficult, if not impossible, to single out any one soil factor as the all-important or controlling one which can be observed in actual field results. It is known that phosphates in considerable available supply tend to lighten the color of vegetation, but this is not sufficient to account fully for the peculiar chlorosis of Burley, because some of the brightest Burley tobacco produced is grown on soils where the supply of phosphorus is only normal. The same may be said concerning lime also. In fact the finest and brightest Burley best suited to high-grade cutting purposes is most likely to be produced on freestone soils rather than on limestone soils. For plug fillers, however, which form the largest single item in the consumption of Burley tobacco, the heavier-bodied types produced on the rich limestone soils, though somewhat darker in color, are generally preferred.

It is true, therefore, that the soil exerts a dominating influence in producing a Burley tobacco of good quality, but this seems to be due to a combination of factors rather than to any particular ones that can be specified with precision. It is of course quite likely that the special soil conditions had something to do with the original mutation of the White Burley characteristics. Any other type of seed planted on typical Burley soil will produce a brighter, more porous tobacco than if planted, for example, on a typical heavy, dark, export-tobacco soil, but it will be far from equaling the product obtained from Burley seed in this respect. Conversely, the hereditary influence of Burley seed is also most remarkable. Even when planted on a most

unpromising soil from the standpoint of Burley, the characteristic cream-colored stalks and midribs are always noticeable. On these poorly adapted soils, of course, the cured product will not possess the same degree of excellence as on the typical Burley soils. A portion of a field of thrifty young Burley plants in the bluegrass section (Fayette County, Ky.), is shown in figure 29. The peculiar characteristic white venation shows even in the picture. On the less hilly portions of the Burley district 2-horse machine setters are much used in transplanting the young plants from the seed bed to the field. Such a machine is shown at work in figure 30. The use of these machines is

FIG. 29.—Part of a field of thrifty young Burley tobacco plants in the bluegrass section, Fayette County, Ky.

also common in nearly all the cigar-tobacco districts. While the prepotent strength of this inherited modified chlorophyll characteristic of White Burley is, however, very remarkable, yet it is only on certain soils that all the points of excellence will be present sufficiently to make its production commercially successful under normal conditions.

Friable mellow soils of a clayey or of a silty nature, strong and durable in natural fertility, and which have laid long in grass are at least among the most desirable requisites for producing a good grade of Burley whether or not they are exceptionally rich in lime or phosphates. Since 1907, because of the unusual scarcity and consequent

high prices of Burley, due to the efforts of the Burley Tobacco Growers' Association to restrict the supply and advance the price, unusual efforts have been made to introduce the production of Burley tobacco in a large number of new sections. These undertakings, on account of the scarcity and high prices, have usually proved profitable to the grower, but the discrimination in prices as compared with better grades of Burley was in many cases very marked. With normal market conditions this low-grade Burley produced on unsuitable soils in all probability would have been still further discriminated against to the extent of rendering its production unprofitable.

It is noteworthy, however, that many of these experimental crops of Burley in untried sections proved much better in quality than expected and compared very favorably with the product of the established Burley territory, and it seems quite possible that some

FIG. 30.—Transplanting and watering tobacco seedlings by machine, a common method in parts of the Burley district and in nearly all the cigar-tobacco districts.

of these new locations where Burley has been introduced may develop into permanent producing territory.

In 1909 scattered crops of Burley were tried here and there over much of piedmont and middle Virginia and in some parts of the valley between the Blue Ridge and the Alleghenies. So far as could be judged from the results of these experiments, considerable good Burley was grown on the strong, red, nonlimestone soils in the piedmont and on some of the limestone soils of the valley. Most of the Burley produced on the gray soils of the middle and eastern section of the State, however, was of very inferior quality.

For the purposes of this bulletin it will be unnecessary to dwell longer on the soil requirement of White Burley or on the results of attempts to produce a satisfactory product in new sections. Figure 31 shows a view of a typical curing barn of the better type common in the Burley district of Kentucky and elsewhere.

GENERAL CHARACTERISTICS AND USEFULNESS.

DOMESTIC USE.

Burley tobacco, like the flue-cured, is a modern type developed since the Civil War. It has also many of the same points of excellence, making it well adapted to domestic manufacture and consumption. It is even milder than flue-cured, and since it is an air-cured type it is entirely free from the odor or flavor of smoke. It runs to light colors

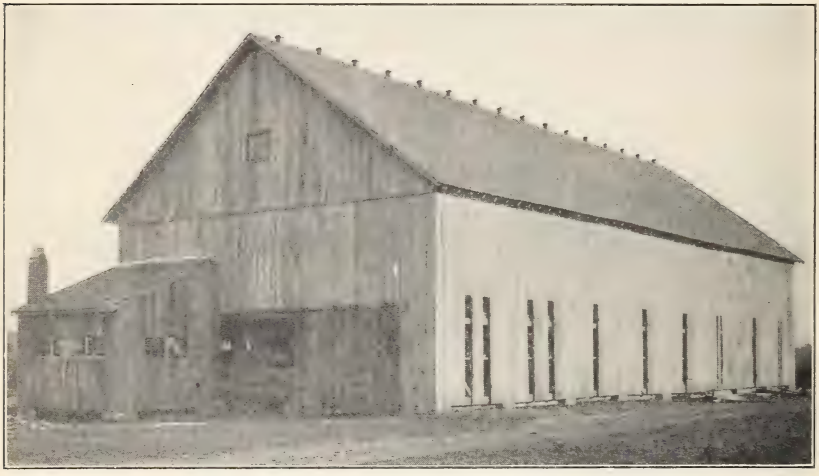

FIG. 31.—Common type of curing barn in the Burley district of Kentucky.

and burns well, making it quite well adapted for use in smoking mixtures. The size of leaf is desirable and when grown on proper soils is very smooth and fine of fiber.

In one important respect Burley tobacco is in a class by itself and superior to any other type, that is, in its remarkable capacity for absorbing liquid sweetening and flavoring materials. From the standpoint of the manufacturer this capacity renders it a most economical tobacco to use, as these sauces are much cheaper per pound than tobacco itself, and from the standpoint of the consumer who likes his tobacco highly flavored and sweetened, it is also a most desirable quality. This unusual absorptive or "drinking" capacity, as it is often called, is really the foundation of the great success of Burley tobacco.

In point of real tobacco quality, as pungency, aroma, or fragrance, Burley is rather negative and weak, but as used this weakness is really another point in its favor. This lack of decided character of its own, combined with its great absorptive capacity, makes it an easy matter to flavor it up artificially in almost any way desired. Immense quantities of this heavily sweetened western plug of the so-called navy type is manufactured in the great factories at St. Louis, Louisville, and elsewhere. Burley is also the principal type used in the manufacture of the great array of cut-plug smoking tobaccos and of fine-cut chewing tobacco. It is also useful for granulating purposes, and some of the best grades make the finest cigarette and twist wrappers. In recent years the expansion in the use of chewing tobacco has come nearly to a standstill. Very few young men become chewers. They smoke instead. Among pipe tobaccos those of the cut-plug type, made principally from Burley, are increasing very rapidly in popularity and use.

FOREIGN DEMAND.

The development in use of Burley tobacco for domestic consumption since the Civil War has been astonishing and has far outstripped its closest rival, the flue-cured type, in this respect among the manufacturing types of tobacco. Nevertheless, it has not attained any importance as an export type, and in this regard has been far outstripped by the flue-cured type.

This lack of progress as an export type is quite clearly due to two or three easily discernible factors. Foreigners as a whole chew tobacco but little, and furthermore the laws of our most important foreign customer, Great Britain, do not permit of the use of any form of sweetening or flavoring in manufactured tobacco products. This, of course, largely negatives the specific usefulness that Burley might have to make it particularly valuable there. Finally, the price of Burley, due to a strong, more or less constant domestic demand, has been in recent years unfavorable to its purchase by foreign countries. In the early nineties of the last century, however, when prices were very low, Burley was exported quite extensively, particularly to Germany, Belgium, and France. Exports of this type would doubtless again increase should prices drop to a low figure for any considerable length of time. The foreign demand for Burley is mostly for the low grades usually designated as common red smokers. Under conditions as they are, however, the quantity of Burley tobacco annually exported is small and probably does not exceed 5 per cent of the crop.

GRADES AND PRICES.

Burley tobacco possesses very little gum or oil, is comparatively low in nicotine, is of light color and body, and is rather dry and lusterless in appearance.

The small proportion of the fine grades suitable for wrappers for cigarettes and twist are of very fine fiber, of clear, uniform, solid color, very soft and smooth in texture, and, of course, free from holes, raggedness, or other mutilation. The supply of these grades in a crop is always small, and they can only be picked up here and there in small lots. The demand, of course, is comparatively small also, but these grades usually bring 20 cents or more a pound. Freshly cleared hillside land of a loose, porous nature is most likely to produce these finer grades. Mason County, Ky., has long had the reputation of producing a considerable portion of this high-grade wrapper leaf. Among the newer sections the hill lands of the West Virginia Burley district produce a fine grade of leaf, much of which is useful for wrapper purposes. The grades adapted for cutting purposes require good, bright, clean stock of reasonably fine texture. The use of these grades for manufacturing the great number of popular brands of plug-cut smoking tobacco and also for fine-cut chewing tobacco, which requires some very fine, bright leaf, makes the demand for them quite large. The cut-plug stock is usually obtained from the grades known as bright lugs and trash from near the bottom of the plant.

The greatest quantity of Burley is, of course, used for plug filler of the heavily sweetened type. For this purpose the most important requisite is porosity, in order that it may absorb and retain the large amount of sauces used in its manufacture. Color is not of so much importance, as it is lost in manufacture, but the leaf should be sound and of good body and substance. This type of leaf is produced in large quantities on the rich, level, bluegrass fields of central Kentucky.

When Burley was first extended to these rich bluegrass fields it was thought the leaf would be too coarse and dark. The expedient of closer planting and higher topping, however, corrected much of this tendency, and it is the general custom to set 7,000 to 8,000 plants to the acre on the best bluegrass soils and about 5,000 or 6,000 to the acre on the hill lands.

The lower ground leaves or flyings of flimsy texture are used largely for granulating purposes in smoking mixtures and for export.

The average selling price of Burley tobacco from first hands has been subject to extreme fluctuations. In 1893 and 1894 prices were very low, averaging about 4 to 5 cents a pound. The general average through a long period of years, however, has probably been

from 8 to 9 cents a pound, although of course individual crops might sell very much above or below the average for the time, according to the quality of the crop as placed on the market.

Burley tobacco is subdivided into a great array of grades or classes, varying according to the influence of soil, season, and the skill of the individual grower. But only about six fundamental grades are generally recognized, as they naturally occur in any crop or, in fact, upon a single plant. Each plant will usually give from two to four leaves of each of the following grades, beginning at the top of the plant: Green or red tips, red leaf, bright leaf, lugs, and trash. At the very bottom there are generally one or two small trashy leaves called flyings. On some plants or in some crops naturally the so-called bright leaf may be darker than the so-called red leaf from another plant or crop, and vice versa, but the character of the leaf for a given plant usually varies in grade according to the rule stated. In addition to these grades defective grades are usually sorted out and classed as worm eaten, house burned, etc.

After the tobacco is placed on the market this plan of grading is lost sight of very largely, although the names of the grades themselves are retained and leaf, trash, or lugs, etc., will be dark red, bright red, or colory, according to a standard existing in the minds of the members of the tobacco trade.

The prices set by the Burley growers of Kentucky in 1904 in their efforts to obtain better returns from their crops are of interest in throwing light on the comparative value of the different grades into which Burley is naturally assorted by the farmer.

The schedule of prices proposed was for loose tobacco assorted and tied into hands, delivered in soft winter order. When redried and delivered in keeping order the prices were to be 15 per cent higher. The schedule is shown in Table XIX.

TABLE XIX.—*Schedule of prices proposed by the growers' organization for loose Burley tobacco in 1904.*

Classes.	Price per 100 pounds.		
	Grade 1.	Grade 2.	Grade 3.
Flyings	$10	$7	$5
Trash	12	10	7
Lugs [1]	16	12	9
Red leaf	13	11	9
Bright leaf	18	14	12
Tips [2]	10	8	7

[1] Cigarette lugs and fancy leaf from $20 to $26.
[2] Green, damaged, frosted, and common black tips from $3 to $6.

A number of factors must of course be considered to determine the grade of the same class of leaf as fineness, brightness, size of leaf, body, etc., and at best they serve only as approximations. Figure 32 shows samples of several grades of Burley leaf, varying in quality from poor to fine.

The most important markets for the sale of Burley tobacco are Cincinnati, Ohio, and Louisville and Lexington, Ky. A considerable proportion of the tobacco that goes to the Louisville and Cincinnati

FIG. 32.—Burley tobacco, flyer, colory leaf, and red-plug filler. (Photographed by the Bureau of Soils.)

markets, however, is not first-hand farmers' tobacco, but is leaf that had been bought up by speculators and dealers in the country and then shipped to these markets for sale.

FLUCTUATIONS IN PRODUCTION.

From 1907 to the fall of 1910 the price of Burley has been very high because of the artificial condition created by the growers' selling organizations in their efforts to restrict the supply and elevate the prices. In consequence the price average has been more than 12 cents a pound during most of this period.

With tobacco, as with almost every other agricultural product in which the available acreage is not naturally restricted, there is an approximate price at which the acreage and production will naturally tend to expand rapidly and another at which it will tend to decrease. So many factors are at work that it is, of course, impossible to assign

any exact limits of price at which either of these phenomena would become operative, but it is usually possible to do so approximately under given conditions. Certainly at a price near or below cost the production should automatically begin to diminish and at a price high enough to return a greater profit than other available products the acreage and production should automatically tend to increase.

In the case of Burley tobacco there is nothing to indicate any scarcity of soil adapted to its cultivation. Under existing natural conditions the writer believes that the production of Burley should tend automatically to expand at a general price level of about 10 cents a pound, and it would probably tend to decrease should it get down to 8 cents or below for any considerable length of time.

DISTRIBUTION IN USE.

As it passes finally into consumption the distribution in use of Burley tobacco on a farm-weight basis is estimated to be about as shown in Table XX.

TABLE XX.—*Estimated approximate distribution in use of Burley tobacco.*

Grade.	Pounds.	Grade.	Pounds.
Plug filler	100,000,000	Granulating	3,000,000
Cut-plug stock	60,000,000	Cigarettes	3,000,000
Long-cut smoking	15,000,000	Export	9,000,000
Twist	10,000,000		
Fine-cut chewing	10,000,000	Total	215,000,000
Scrap chewing tobacco	5,000,000		

The great bulk of the plug-filler stock mentioned in Table XX is used in the manufacture of plug tobacco of the heavily sweetened type. Considerable of the best Burley is used in the manufacture of some of the western so-called natural-leaf types of flat plug.

DISTRIBUTION OF ACREAGE.

The great bulk of Burley tobacco is grown in Kentucky, in the central and northern portions of the State. Table XXI shows the estimated distribution of its growth in Kentucky, Ohio, and Indiana.

The tobacco grown in West Virginia is practically all Burley. Reliable estimates of the quantity produced are very difficult to obtain. Estimates by men in touch with the situation range from 5,000,000 to 15,000,000 pounds, produced mostly in Cabell, Putnam, Lincoln, and Kanawha Counties, south of the Kanawha River.

Local buyers are stationed at various points in the producing territory. The principal shipping points are Hurricane, St. Albans, and Milton. For the sale of the 1910 crop a loose-leaf auction warehouse market was established at Huntington, W. Va. West Virginia Burley for the most part had previously found its way finally to the Cincinnati or to the Richmond market. In quality West Virginia Burley is fine and smooth and produces some fine twist and cigarette wrappers and good cutting leaf. The yield, however, is rather small, the lay of the land being hilly and the soil rather thin and not highly improved as a rule.

TABLE XXI.—*Estimated annual production of Burley tobacco in Kentucky, Ohio, and Indiana, distributed by counties.*

Counties.	Pounds.	Counties.	Pounds.	Counties.	Pounds.
Kentucky:		Kentucky:		Ohio:	
Adair	500,000	Jessamine	2,000,000	Brown	6,000,000
Anderson	3,000,000	Kenton	1,500,000	Adams	5,000,000
Barren	2,000,000	Larue	500,000	Clermont	2,000,000
Bath	4,500,000	Lewis	2,500,000	Gallia	1,000,000
Boone	3,500,000	Lincoln	500,000	Noble	1,000,000
Bourbon	7,000,000	Madison	2,000,000	Scioto	500,000
Boyd	500,000	Magoffin	500,000	Monroe	500,000
Boyle	2,000,000	Marion	1,000,000	Lawrence	250,000
Bracken	6,000,000	Mason	8,000,000	Hamilton	250,000
Breathitt	250,000	Meade	500,000	Highland	250,000
Breckenridge	1,000,000	Mercer	1,500,000	Washington	250,000
Bullitt	2,000,000	Metcalfe	1,000,000	Other counties	1,000,000
Campbell	1,000,000	Montgomery	4,000,000		
Carroll	4,000,000	Nelson	2,500,000	Total Burley in Ohio	18,000,000
Carter	1,500,000	Nicholas	4,500,000		
Casey	1,000,000	Oldham	500,000		
Clark	5,500,000	Owen	9,000,000	Indiana:	
Elliott	250,000	Pendleton	4,500,000	Switzerland	3,000,000
Fayette	8,000,000	Robertson	2,500,000	Jefferson	1,500,000
Fleming	4,500,000	Rowan	500,000	Dearborn	1,500,000
Franklin	3,000,000	Scott	8,000,000	Ohio	1,000,000
Gallatin	2,500,000	Shelby	6,500,000	Clark	500,000
Garrard	2,000,000	Spencer	2,500,000	Other counties	500,000
Grant	5,500,000	Trimble	3,500,000		
Green	1,000,000	Washington	4,500,000	Total Burley in Indiana	8,000,000
Greenup	2,000,000	Woodford	5,000,000		
Hardin	1,000,000	Other counties	1,000,000		
Harrison	6,000,000				
Hart	2,000,000	Total Burley in Kentucky	170,000,000		
Henry	6,000,000				
Jefferson	500,000				

Missouri, principally in Platte and Clay Counties, has recently been coming to the front as a producer of a very good grade of Burley. The annual production is uncertain, but it is estimated at upward of 3,000,000 pounds for the three years preceding 1910 and is probably 8,000,000 to 10,000,000 pounds for 1910. Up to about 1880 Missouri had produced almost entirely dark tobacco of the Yellow Pryor type. Some was fire cured or coal cured, but the larger part was air cured. The longer, coarse tobacco, constituting the bulk of the Missouri crop in the old days, went principally to England and Ireland. The finer, lighter bodied tobacco produced on the hills and Missouri River bluffs was used largely in domestic manufacturing. The principal

production was in the counties along the Missouri River, mostly on the north side. Chariton, Randolph, Howard, and Boone Counties were the heaviest producers. In 1876 Chariton County alone produced 14,000,000 pounds of tobacco.

During the eighties much of the acreage shifted to Burley or owing to low prices and greater interest in other crops dropped out altogether, until the production of all the dark tobacco and nearly all the Burley had ceased altogether in the early years of the present century. About 1897, however, a Kentuckian named Turner, residing in Platte County, Mo., chanced to think that Burley would grow successfully in that section. A trial crop was raised near Weston with reasonable success and a number of other farmers, assisted principally by renters from Kentucky, began to plant small crops. The soil in that section is of limestone origin, is very rich and productive, and the land is somewhat rolling and impresses one as favorable for Burley tobacco. Up to 1907 the crop near Weston amounted to about a half million pounds of tobacco yearly. With the cutting out of the 1908 crop of Burley in Kentucky, however, there was a considerable immigration of renters to the Weston neighborhood. The production expanded very rapidly and the 1910 crop of Burley near Weston and at local centers in adjoining counties amounted probably to 3,000,000 or 4,000,000 pounds. The older Missouri tobacco district, particularly in Chariton and Carroll Counties, has also greatly increased its production of Burley since 1907, probably to over 3,000,000 pounds in 1910, which, together with a scattered acreage in other parts of the State, means probably from 8,000,000 to 10,000,000 pounds of Burley tobacco produced in Missouri in 1910. The general character of the country about Weston, however, would seem to indicate that that section has the best chance to maintain its position as a tobacco country through periods of low as well as high prices.

A scattered acreage of Burley, quite large in the aggregate, is grown in a number of States, the most important being where the production has spread over into the adjoining One-Sucker and Green River districts of Kentucky and in Indiana. The scattered production is also considerable in the Greenville and upper Cumberland sections of Tennessee and in the Piedmont and valley section of Virginia. This scattered production is hard to estimate with any degree of accuracy, but if it were all tabulated it is believed that it would amount to at least 6,000,000 pounds.

Table XXII shows an estimate of the total average production of Burley for the country by States.

TABLE XXII.—*Estimated total average annual production of Burley tobacco in the United States, distributed by States.*

States.	Pounds.	States.	Pounds.
Kentucky	170,000,000	Scattered, principally in Tennessee and Virginia	6,000,000
Ohio	18,000,000		
Indiana	8,000,000		
West Virginia	8,000,000	Total Burley crop of the United States	215,000,000
Missouri	5,000,000		

This estimate of the production of Burley tobacco will manifestly not tally very closely with the actual or estimated production of Burley in any one of the last few years. As is well known, conditions themselves have been far from normal in the Burley territory. In 1908, under the influence of the Burley Tobacco Growers' Association, the planting of tobacco in much of the best Burley territory in Kentucky was entirely omitted. The Department of Agriculture estimated the total production of Burley in that year at 35,000,000 pounds. That was the first year that the department made estimates of total production by types, but unofficial estimates from reliable trade sources had generally given the Burley crop for the few years preceding at from 175,000,000 to 200,000,000 pounds per annum. In 1909 the department estimated the Burley crop at 244,800,000 pounds and unofficial trade estimates generally put it from 250,000,000 to 300,000,000 pounds. In 1910 the planting of Burley was estimated by the Department at 15 per cent more than in 1909. These two unusually large crops were manifestly abnormal and the result of abnormal trade conditions consequent upon the elimination of the 1908 crop.

Mr. T. M. Carrington, of Richmond, Va., in his annual presidential address before The Tobacco Association of the United States, at the tenth annual convention, July 2, 1910, stated that the estimated normal consumption of Burley tobacco was around 200,000,000 pounds per annum, which is probably not far from correct. In this light it is evident that the production of Burley can not permanently remain at an average near 250,000,000 or 300,000,000 pounds per annum until consumption has materially increased.

The estimates submitted in this bulletin, therefore, are not intended to represent any single crop of recent years nor to reflect the abnormal production of 1909 and 1910, but the effort has been made to represent about a normal production. It must be said, however, that but for the abnormal conditions the production of Burley in such new sections as Missouri, Tennessee, and Virginia would have been much less even than estimated above, or perhaps in many cases there would have been no production.

A study of the map of Kentucky in connection with the yield of tobacco, as given in Table XXI, will show a tier of counties in

the western portion of the Burley district where the production is comparatively small. This section, including the western part of Bullitt, Meade, Hardin, and Larue Counties, represents a transition in type of soil from the typical phosphatic limestone section of the Burley district on the east to the dark-tobacco section on the west. As such it is quite an interesting feature. Until recently this section produced very little tobacco of any kind, but since 1907 production has spread rapidly.

The territory included in the principal Burley districts is shown on the map (Pl. II, in pocket).

GREEN RIVER TOBACCO.

GENERAL CHARACTERISTICS.

Westward from the Burley district in Kentucky lies a transition territory which produces only small quantities of tobacco. Farther

FIG. 33.—Typical Yellow Pryor tobacco plant, a favorite dark type commonly grown in the Green River district of Kentucky.

west is the Green River district, where the type of tobacco grown is air cured like Burley, but the general character of the seed used, methods of cultivation, etc., are almost the same as in the dark-fired district covering the remainder of western Kentucky. Figure

33 shows a typical plant of the Yellow Pryor type commonly grown in the Green River district.

PRODUCTION AND DISTRIBUTION IN USE.

The tobacco produced in the Green River district is not quite a typical manufacturing tobacco, nor yet is it an export type. It is classed as a dark tobacco and resembles in size of leaf and general appearance the product of the dark-fired district adjoining on the west, except that, being air cured, it is free from the odor and flavor of smoke and is more acceptable for domestic manufacture and consumption. Of the total production of Green River tobacco, which is about 35,000,000 pounds annually, it is estimated that about two-thirds is used in domestic consumption and one-third is exported, nearly all going to Great Britain. The portion consumed at home is used principally in the manufacture of long-cut smoking tobacco. Some of the finer grades are also used to some extent in the manufacture of fine-cut chewing tobacco.

GRADES AND PRICES.

Farmers generally make about three grades of the tobacco as they sort out the crop in preparation for market, classed as leaf, lugs, and trash. The average farm price of Green River tobacco is generally about 5 or 6 cents a pound. In 1903 and 1904 it averaged but little above 4 cents a pound. From 1907 to 1909, under the general influence of the efforts of the selling organization to enhance the price of nearly all of the export and manufacturing types of tobacco, it averaged from 7 to 8 cents.

The principal market point for the district is Owensboro, where are situated extensive leaf plants for handling the tobacco in preparation for the home trade or for export. Other important local receiving points for the district are Hawesville, Livermore, Hartford, Fordville, and Hardinsburg. A considerable portion of the Green River crop is also marketed through Louisville, principally at private sale, by sworn sample after inspection.

DISTRIBUTION OF ACREAGE.

The production of the Green River type of tobacco is confined almost entirely to five counties of Kentucky. An estimate of the total production is shown in Table XXIII.

TABLE XXIII.—*Estimate of the annual production of the Green River type of tobacco in Kentucky, distributed by counties.*

Counties.	Pounds.	Counties.	Pounds.
Daviess	15,000,000	Hancock	3,500,000
McLean	6,500,000	Grayson	750,000
Ohio	5,750,000		
Breckenridge	3,500,000	Total, Green River type	35,000,000

It will be noted that Daviess County produces nearly half of the entire quantity produced in the Green River district.

The map (Pl. II, in pocket) shows in outline the territory included in the Green River division of the dark air-cured districts.

ONE-SUCKER TYPES OF TOBACCO.

GENERAL CHARACTERISTICS AND USEFULNESS.

Like the tobacco of the Green River district, the One-Sucker type is classified as dark tobacco and like both the Burley and the Green River types it is cured without recourse to artificial heat, that is, it is an air-cured type. It is therefore adapted for use in domestic manufacture and consumption, but like the Green River type it is also to a considerable extent exported.

The type derives its name because the variety principally grown in the One-Sucker districts is known as One-Sucker tobacco from its habit of throwing out suckers somewhat less freely, perhaps, at the axils of the leaves after being topped than do most other kinds of tobacco. It is a narrow-leaved sort with very heavy midribs. The veins make a very acute angle with the midrib. On rich land it makes a very long, heavy leaf that is well suited for the "rehandling" export trade, principally to the west coast of Africa. Figure 34 shows a characteristic plant of the One-Sucker type.

SUBDIVISIONS OF THE ONE-SUCKER DISTRICTS.

SOUTHERN KENTUCKY AND UPPER CUMBERLAND SECTIONS.

The Green River district proper, as considered above, covers only about half of the north and south buffer area between the Burley district and the dark-fired district. The southern portion of this territory is occupied by what is known to the tobacco trade as the southern Kentucky and upper Cumberland section of the One-Sucker district.

The northern part of this One-Sucker section in Kentucky is sometimes designated as the "upper" Green River district in contradistinction from the (lower) Green River district proper.

The southern part of this district, along the headwaters of the Cumberland River in Tennessee and Kentucky, produces a brighter type of leaf than does the northern part of the district. Some of this upper Cumberland section produces a type of leaf hardly distinguishable at first glance from Burley. The country is very hilly and the tobacco is grown to a considerable extent on steep hillsides which, however, from the open, porous nature of the soil are not greatly

subject to washing. Outcroppings of limestone are common and Burley is planted to a considerable extent here and there all through the upper Cumberland portion of the district.

Warren and Barren Counties in Kentucky are the largest producers of this southern Kentucky type. The principal receiving and shipping points in Kentucky are Bowling Green, Glasgow, and Scottsville. In Tennessee, Smith and Macon Counties lead in production and Harts-

FIG. 34.—Plant of the One-Sucker type. The leaves are long and narrow and the veins make an unusually acute angle with the midrib.

ville and Carthage are the important shipping points. In Kentucky the best quality of One-Sucker tobacco, that is the finest, largest, and richest leaf, is produced in the western portion of Warren County, the eastern and southern part of Barren County, and the northern part of Allen County. The production is also much the most concentrated in this section and produces at least 50 per cent of the total One-Sucker crop in Kentucky.

In Tennessee, production is most concentrated in the northern part of Smith County, where much long tobacco particularly suited to the rehandling export trade is produced, and also in Macon County, where tobacco somewhat shorter but with good body and texture is produced, suitable for domestic manufacturing purposes.

THE ONE-SUCKER TYPE IN SOUTHERN INDIANA.

Across the Ohio River about opposite Daviess County in Kentucky there is a section in southern Indiana that also produces annually some 5,000,000 or 6,000,000 pounds of tobacco of the One-Sucker type. The leaf, however, is perhaps somewhat larger and coarser than it is in Kentucky and Tennessee. Formerly this district was much more extensive than at present and the tobacco produced was marketed principally at Evansville.

In the seventies and early eighties of the last century the maximum of production was reached in this southern Indiana section, after which it almost ceased in the early nineties. It was taken up again in a small way in the late nineties, however, and in the last few years, owing to high prices, has expanded probably to some 6,000,000 or 8,000,000 pounds in 1910. The heaviest producing center is the southwestern part of Spencer County. The soil is fertile and the tobacco produced is rather coarse but long and well suited to the rehandling export trade. The principal receiving and shipping points of the southern Indiana portion of the One-Sucker territory are Rockport, Booneville, and Dale.

PRODUCTION AND DISTRIBUTION OF ACREAGE.

The entire production of One-Sucker tobacco in the southern Kentucky, upper Cumberland, and southern Indiana districts is quite variable, tending to expand rapidly with good prices and to shrink when they are low. A fair average for recent years, however, is probably about 30,000,000 pounds per annum, of which about 18,000,000 pounds is produced in Kentucky, 7,000,000 pounds in Tennessee, and 5,000,000 pounds in southern Indiana. Under the somewhat artificial condition of very recent years the combined production of the One-Sucker types of tobacco in these districts has run probably nearer 35,000,000 pounds than 30,000,000.

The production in the One-Sucker districts of Kentucky, Tennessee, and Indiana is shown in Table XXIV.

TABLE XXIV.—*Estimated annual production of the One-Sucker type of tobacco in Kentucky, Tennessee, and Indiana, distributed by counties.*

Counties.	Pounds.	Counties.	Pounds.
Kentucky:		Tennessee—Continued.	
Warren	4,500,000	Macon	1,500,000
Barren	3,500,000	Jackson	1,000,000
Allen	2,500,000	Clay	500,000
Simpson	1,500,000	Other counties	250,000
Butler	1,500,000		
Logan	1,000,000	Total in Tennessee	7,000,000
Taylor	1,000,000		
Monroe	1,000,000	Indiana:	
Grayson	500,000	Spencer	2,500,000
Metcalfe	500,000	Warwick	1,500,000
Cumberland	250,000	Dubois	750,000
Edmonson	250,000	Perry	250,000
Total in Kentucky	18,000,000	Total in Indiana	5,000,000
Tennessee:			
Smith	2,500,000	Grand total, One-Sucker type, in Kentucky, Tennessee, and Indiana	30,000,000
Trousdale	500,000		
Sumner	750,000		

GRADES AND PRICES.

Growers in the One-Sucker districts assort the crop generally into about three grades, leaf, lugs, and trash, which they have been selling at an average of about 6 to 7 cents a pound in recent years. In 1904, however, and for some years previous to that time only about 4 or 5 cents a pound was obtained on the average.

DISTRIBUTION IN USE.

The one standard domestic use of the One-Sucker type of tobacco is in the manufacture of twist, for which its toughness and medium strong flavor and body render it particularly adaptable. A large portion of the medium-sized, finer textured, leaf of this district is used for twist purposes. It is particularly adapted for this purpose in that it has the required toughness of leaf and is generally of medium body and strength. It is about midway between the light, rather characterless Burley and the very strong heavy types grown farther west in the Clarksville and Paducah districts.

The standard and most important export demand of the One-Sucker type of tobacco is for rehandling purposes in preparation for shipment to Africa, the West Indies, and a number of the Spanish-American countries of Central America and South America. In this trade, as finally utilized, much of the tobacco is retailed in the leaf. Length is one of the prime attributes for this class of trade, and since it is not stemmed the manufacturer experiences no loss from the large proportion of stem. For this purpose the leaf should be from 25 to 30 inches long, and the longer it is the better price it will usually bring. This rehandling consists in artificially enriching the leaf by treating it with various materials such as glycerin or vaselin

and in blackening it by steaming and subjecting it to very heavy pressure in prizing. The treated tobacco is packed in tierces, boxes, or bales of various shapes and sizes convenient for transportation, often some distance inland, by animal power. A number of large plants for rehandling tobacco of the type just described, probably representing some 80 per cent of the total business of this class in the country, are located in Louisville.

The manufacture of domestic twist and the rehandling or export trade probably absorb about two-thirds or 20,000,000 pounds of this One-Sucker type of tobacco annually. The other 10,000,000 pounds is uncertainly divided among a number of miscellaneous domestic and export demands very difficult to classify accurately. An approximate estimate of the distribution in use of the One-Sucker type is presented in Table XXV.

TABLE XXV.—*Estimated distribution in use of the One-Sucker type of tobacco.*

Use.	Pounds.	Use.	Pounds.
Domestic:		Export:	
Twist	8,000,000	Rehandling, Africa, etc	12,000,000
Plug	5,000,000	Miscellaneous	3,000,000
Granulating	2,000,000		
		Total	30,000,000

A large portion of the dark tobacco sold in Louisville is of the One-Sucker type from this district, shipped in mostly by country dealers and speculators. The areas covered by the subdivisions of the One-Sucker air-cured type are shown on the map (Pl. II, in pocket).

VIRGINIA "SUN-CURED" TOBACCO.

Several of the counties of middle Virginia just north of the James River produce a type of tobacco known to the trade as "Sun-Cured," which is probably in the nature of a development from tobacco growing as it was practiced in the early days in the York and Rappahannock River sections of the State.

METHOD OF CURING AND GENERAL CHARACTERISTICS.

The name "Sun-Cured" as now applied to the type as a whole is really a misnomer so far as indicating any special method of sun curing is concerned. In the typical sun-cured product the tobacco is scaffolded in the open air or sun near the curing barn and is allowed to remain on the scaffold crowded rather closely together for five or six days until thoroughly yellowed. The sticks of tobacco are then spread apart somewhat so that the air may pass between the plants in order to prevent damage to the lug leaves from sweating, and the tobacco is then allowed to remain on the scaffold three or four days

more until well under way in the curing process. It is then placed in the barn and the curing process finished as with any air-cured tobacco. This exposure to the sun is thought to sweeten and improve its flavor for chewing purposes. As a matter of fact, however, owing largely to the increased cost of labor and greater expense in handling, the typical sun-curing process is now but little practiced and tobacco in the Sun-Cured district is, for the most part, just an air-cured tobacco, as is Burley or Green River or the cigar types.

Such special qualities as the so-called "Sun-Cured" tobacco possesses in contradistinction from other air-cured types are really due, therefore, to soil and climatic modifications, methods of cultivation, and seed rather than to the process of curing. The seed used in the Sun-Cured district, however, is practically the same as that used in the other dark-tobacco districts of Virginia, Kentucky, and Tennessee. Figure 35 shows the tobacco "sunning" on the scaffold

FIG. 35.—Sunning tobacco in the Virginia Sun-Cured district, Caroline County, Va.

near the open south side of the curing barn. In case of rain it is quickly removed to the shed.

USES OF "SUN-CURED" TOBACCO.

"Sun-Cured" tobacco practically all goes into domestic consumption in the form of flat plug, both the wrapper and the filler being of this type. It makes a sweet but rather strong chew, much in favor by chewers, especially in Virginia and North Carolina.

Nearly all the "Sun-Cured" tobacco is manufactured in the factories at Winston Salem, N. C., and at Richmond, Va.

DISTRIBUTION OF ACREAGE.

In former days "Sun-Cured" tobacco was extensively grown in several of the south side counties of the State, and a little "Sun-Cured," or, more correctly speaking, air-cured, tobacco is still pro-

duced here and there in the eastern portion of the dark-fired and flue-cured districts of Virginia (mostly in the section from Clarksville, in Mecklenburg County, to Petersburg), and also in the Winston Salem section of the flue-cured district in North Carolina. The production is now confined principally, however, to the counties near Richmond on the north side of the James River, distributed approximately as shown in Table XXVI.

TABLE XXVI.—*Estimated annual production of "Sun-Cured" tobacco in Virginia, distributed by counties.*

Counties.	Pounds.	Counties.	Pounds.
Caroline	3,000,000	Fluvanna	500,000
Louisa	2,500,000	Other counties	750,000
Hanover	2,000,000		
Goochland	1,250,000	Total	10,000,000

PRICES AND GRADES.

The popularity and demand for "Sun-Cured" tobacco has seemed to be increasing for the past few years, and it has brought fairly good prices—in recent years usually a little above the average for the dark-fired district of Virginia. The average prices obtained by farmers in the five-year period 1905 to 1909 has been from 8 to 10 cents a pound. Some crops, of course, average very much more, sometimes double these figures, and good plug wrappers frequently bring from 25 to 40 cents a pound, although of course these highest grades constitute but a small percentage of the crop. Under the influence of better prices the acreage of "Sun-Cured" tobacco in recent years has tended to increase somewhat, and the crops of 1909 and 1910 were probably close to 10,000,000 pounds each year. At the State fair held at Richmond, Va., in October, 1910, members of the Richmond tobacco trade offered special premiums for the best samples of sweet air-cured tobacco produced in several new sections as well as in the regular Sun-Cured territory itself, with the purpose of increasing the production. Actual future expansion will probably depend more upon prices paid than on any other factor.

In assorting "Sun-Cured" tobacco, farmers generally make fewer grades than with other Virginia types—often but two grades, classed as leaf and lugs—unless there are wrappers present in sufficient quantity to make it worth while to pick them out. From the buyer's standpoint the important grades are fillers and wrappers of varying character and value. "Sun-Cured" tobacco is practically all marketed loose through the auction warehouses at Richmond.

The Sun-Cured manufacturing district of Virginia is outlined on the map (Pl. I, in pocket).

PERIQUE TOBACCO.

Out of the attempts to produce tobacco for export on the rich river lands of Louisiana in the early days when it was a French colony a peculiar method of manipulation in curing the tobacco that is unique and distinctive was finally introduced among the Arcadians of a community in St. James Parish.

Although the production of Perique is so small as to make it of but slight importance commercially, the process is so unique as perhaps to warrant a brief description of the manner in which this tobacco is produced.

METHODS OF PRODUCTION.

The tobacco is grown on the more elevated and drier portions of the rich Mississippi alluvial soil in the heart of the sugar-cane and rice country in St. James Parish, La. The type of seed used does not seem to be important, but the large, heavy, dark varieties are best. Burley was tried a few years ago by some of the growers, but it proved distinctly unsuitable, as it would not blacken properly and gave up its juices too freely under pressure.

The land is heavily bedded in rows about 5 feet apart in preparation for planting and about 2,500 plants are set to the acre. The tobacco is generally grown continuously on the same land year after year, but as the crop is harvested about the last of June, cowpeas are grown during the remainder of the year and are turned under in preparation for the next crop. About 200 pounds of cottonseed meal per acre are also generally used as a fertilizer. Topping and suckering are practiced about as in the dark-tobacco districts.

In harvesting, the entire plant is cut and hung from the wires stretched across the barn by suspending each plant separately by means of a nail driven partly into the butt of the stalk at an appropriate angle.

In about 10 days most of the leaves are sufficiently cured to strip, and the stripping must be done at the right stage, that is, while the web of the leaf is brown and the midrib is still green for about two-thirds of its length. The stem is removed and the leaf split in half and made up into large twists about a foot long, weighing approximately 1 pound each. About 50 of these twists in very soft order are then packed in strong pressing boxes 11 inches square and 16 inches high.

The tobacco is then placed under very high pressure by means of lever presses. Heavy weights, usually of stone, are applied at the long end of the lever in order to give a steady, uniform pressure, such as could not be obtained with a screw, the object being to start the juices which ooze from the leaves, black and sticky. The pressure

is so regulated as merely to start the sap to oozing, but not to make it run from the boxes, because it is desired that it be reabsorbed. This process gives to Perique tobacco its black, gummy appearance when finished.

In order that this process may proceed uniformly, the boxes are opened every day or two for two weeks, and the twists are loosened so as to allow the air and moisture to reach all parts and so that the juices will be pressed out and reabsorbed uniformly throughout the entire twist. At least once during this period of "working," as it is called, the twists are opened up fully and any unchanged or dry leaves are placed on the outside of the twist and dampened; sometimes a little petune, usually rum, is blown over each layer of twists as they are packed back in the boxes.

At the end of this period of "working," the tobacco is ready to "lay by," as it is called. A considerable shrinkage of volume has by this time taken place, so that the contents of three boxes can be put into two. The pressure from the levers is renewed but is made not quite so heavy as at first and allowed to remain for a period of several months, during which time the tobacco mellows and ages and acquires the characteristic aromatic fragrance peculiar to Perique. The tobacco is ready for use the following February or March, or about eight months after harvest. The yield of cured tobacco after it has been through this process (minus the stems, it will be noted) is 400 to 500 pounds to the acre.

Until recent years nearly all Perique tobacco was put up into cylindrical rolls or carottes, as they are called, weighing either 4 pounds or 1 pound each. These rolls were made by carefully rolling the required weight of tobacco in pieces of strong cloth and then winding with strong rope cord under heavy strain by means of an ingenious windlass device. This rope winding is allowed to remain for several days or until the carotte is to be sold, when the rope and cloth covering is removed and an appropriate paper or other cover with revenue stamp is put in its place. This heavy pressure from the rope winding serves to compact the tobacco so that it will not dry out and puts it in good shape to whittle or shave off the end of the roll into fine cut for either cigarette, smoking, or chewing purposes. Figures 36 and 37 illustrate various features of this process of handling Perique tobacco.

Only a small portion of the Perique crop is now put up in carottes in this manner, however, and that portion mostly for local trade. The bulk of the crop is sold in the form in which it comes from the curing presses to regular manufacturers. For shipment to this class of trade the compacted juicy twists are packed and prized into whisky barrels, about 500 pounds to the barrel. Orders for

Perique in this form are usually placed by manufacturers some time in advance, often before the crop is planted.

Whether or not this peculiar method of curing tobacco was really invented in its essentials by the Arcadians, as some think, seems uncertain. The writer is inclined to believe that it was not. At any rate, it is known that the natives of some Central American and South American countries have for years been putting up tobacco in twists after subjecting it to heavy pressure by windlass or other devices. Many European manufacturers put up coil tobacco, blackened by heavy pressure and absorbed juices, possessing much the appearance and aroma of Perique.

FIG. 36.—Working (loosening and aerating) the twists of Perique tobacco during the pressing process, St. James Parish, La.

USES OF PERIQUE TOBACCO AND LOCATION OF AREA.

The production of Perique tobacco is considered by the Bureau of Internal Revenue to be in the nature of a manufacturing process and all Perique producers are classed as manufacturers and registered as such, although they pay the tax on only a small portion of the product. The larger portion of their production is sold to other manufacturers as material in process of manufacture before payment of the tax.

The total production of Perique is small, amounting to about 200,000 pounds annually, as indicated by the internal-revenue figures

and by the estimates of the growers. More than 50 Perique manufacturers are usually registered on the internal-revenue books.

Manufacturers mostly use Perique in small quantities in fancy smoking-tobacco mixtures to give them richness and aroma. Considerable Perique is used locally in the form of fine cut for chewing and as shaved from the ends of the carottes for rolling into cigarettes. Cigars of some brands have a few strands of Perique in them to add to the body and richness of the smoke.

The Perique district is principally confined to a small section of St. James Parish on the east side of the Mississippi River and immediately back from the river from Lutcher to Convent, a distance of about 12 miles. More than half the total production is cen-

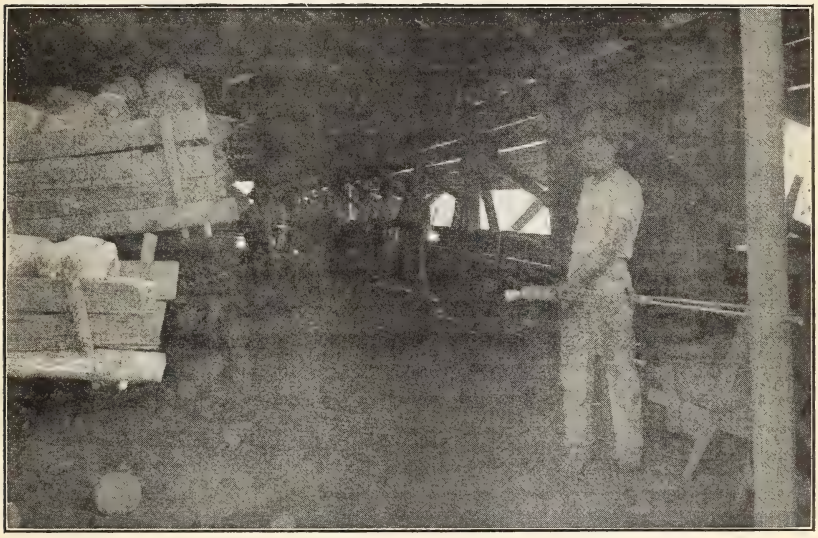

FIG. 37.—Winding the carotte with rope, which is left very tight by the windlass arrangement, Perique tobacco district, St. James Parish, La.

tered in the Grand Point district about 3 miles from the river and back of Hester station. Grand Point is not a projection into the river, as might be supposed, but rather a body of land a little lighter in texture and slightly above the general flat level, jutting into low, swampy land back from the river. Here in a small section, perhaps not over 1,000 acres in extent, reside most of the Perique planters, each growing usually from 5 to 15 acres of tobacco, to which they devote practically their entire attention. They are nearly all Arcadian French—a very kindly and hospitable people.

Perique tobacco in carottes now sells at retail for about 50 cents a pound. In whisky barrels to dealers, however, the prices vary con-

siderably and are of course subject to agreement, but it is understood to run from about 25 to 30 cents a pound. In former years prices were much above this and carottes sold for $1 a pound.

BRAZILIAN TOBACCO.

In the western part of Williamson County, Tenn., in the vicinity of College Grove, Triune, and Allisona, there is a small section that has for a number of years produced a few hundred thousand pounds yearly of what is known to the trade as Brazil smoking tobacco.

Locally this is thought to be the best of smoking tobaccos. It is mostly put up in granulated form. Its popularity has waned in recent years except locally, and very little has been grown in the past few years. Under the influence of the high prices even for the low grades of Burley, the attention of growers has turned mostly to experiments in growing the Burley type.

Brazilian tobacco, in general appearance and habits of growth, resembles Cuban tobacco more than any of the manufacturing or export types which we have described.

RÉSUMÉ, WITH STATISTICS OF ALL TYPES.

Table XXVII is in the nature of a résumé of the actual production of tobacco in the United States in 1909 as estimated by the crop-reporting board of the Bureau of Statistics of the United States Department of Agriculture. The division into types does not in every case follow that laid down in the preceding pages of this bulletin, but it is sufficiently similar to enable any reader to fit the two together without difficulty.

The most important modifications in classification are the grouping of the Stemming and the Green River districts together as one district, calling them the Henderson or Stemming district. No mention is made of a One-Sucker type or district, but two of its component parts, the upper Green River and upper Cumberland sections, are mentioned as separate districts. The southern Indiana section of the One-Sucker district is not specifically mentioned, but it is included in the production mentioned as "scattered" at the bottom of the table, which has been slightly rearranged to make it conform better to the purpose in view. The price averages of two dates 5 years apart, December 1, 1904, and December 1, 1909, have been added for comparison as a matter of general interest. The actual total production of each type was not made a matter of special record at the earlier time.

TABLE XXVII.—*Official estimates of the production of tobacco and yield per acre by types in the United States in 1909, with a comparative statement of the farm price on December 1, 1904, and December 1, 1909.*

Type and district.	Acreage.	Yield per acre.	Production.	Comparison of farm prices per pound.		Value.
				Dec. 1, 1909.	Dec. 1, 1904.	
Cigar types:	*Acres.*	*Pounds.*	*Pounds.*	*Cents.*	*Cents.*	
New England	18,100	1,638	29,655,000	15.9	21.6	$4,709,500
New York	6,000	1,175	7,050,000	8.0	10.0	564,000
Pennsylvania	31,200	985	30,732,000	9.0	8.9	2,765,880
Ohio, Miami Valley	55,000	900	49,500,000	9.5	7.5	4,702,500
Wisconsin	31,500	1,180	37,170,000	9.2	7.8	3,419,640
Florida and Georgia	6,600	707	4,665,000	34.0	28.8	1,586,100
Totals and averages (cigar types)	148,400	1,070	158,772,000	11.2	.....	17,747,620
Export and manufacturing types:						
Burley district	255,000	960	244,800,000	13.4	9.1	32,803,200
Virginia dark-fired district	70,000	840	58,800,000	7.8	6.1	4,586,400
Clarksville and Hopkinsville district	90,000	740	66,600,000	8.0	5.8	5,328,000
Paducah or Western district	82,000	675	55,350,000	7.3	4.8	4,040,500
Henderson or Stemming district (including lower Green River)	92,000	770	70,840,000	6.8	4.1	4,817,120
Upper Green River (One-Sucker type)	20,000	720	14,400,000	6.2	4.8	892,800
Upper Cumberland (One-Sucker type)	11,000	760	8,360,000	6.6	4.7	551,760
Virginia "Sun Cured"	11,000	835	9,185,000	8.4	7.4	471,540
Flue-cured district:						
Old Belt	189,000	640	120,960,000	9.9	8.6	11,975,040
New Belt	164,500	650	106,925,000	8.3	8.4	8,874,775
Maryland and eastern Ohio export districts	28,600	735	21,021,000	8.3	6.4	1,744,743
Perique, Louisiana	400	550	220,000	37.0	21.5	81,400
Scattered	18,400	.....	13,124,000	11.4	.....	1,504,467
Totals and averages (export and manufacturing types)	1,031,900	766	790,585,000	9.8	.....	77,971,745

According to these estimates the actual production in 1909 of all the export and manufacturing types was 790,585,000 pounds. This statement is to be compared with the average estimates already given, amounting to 741,200,000 pounds, as derived almost entirely from private sources. A large part of the actual excess of 1909 over the average estimates was in the Burley type, which was well above normal for that year. The estimate of Burley in the district of 244,800,000 pounds in 1909 accounts for about 30,000,000 pounds of the 49,000,000 pounds difference, and undoubtedly a large portion of the 13,124,000 pounds scattering production of unnamed types was also Burley.

For purposes of easy comparison the estimates of the average production of the various export and manufacturing types as presented in tables throughout the general discussion in this bulletin are shown in Table XXVIII.

TABLE XXVIII.—*Estimated average annual production of tobacco in the United States.*[1]

Name of district or type of tobacco.	Pounds.	Name of district or type of tobacco.	Pounds.
Burley	215,000,000	Flue-cured, New Belt	95,000,000
Virginia dark-fired	52,000,000	Perique	200,000
Clarksville and Hopkinsville	70,000,000		
Paducah	60,000,000	Total export and manufacturing types	741,200,000
Henderson or Stemming	35,000,000	Add cigar types (average production from Table XXVII)	158,800,000
Green River	35,000,000		
One-Sucker (including southern Kentucky or upper Green River, upper Cumberland, and southern Indiana)	30,000,000	Normal production of tobacco (all types) in the United States at the present time	900,000,000
Virginia "Sun Cured"	10,000,000		
Maryland and eastern Ohio export	21,000,000		
Flue-cured, Old Belt	120,000,000		

[1] Based on the estimates by districts as presented in this bulletin.

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TOBACCO DISTRICTS

OF THE

UNITED STATES

(EASTERN SECTION)

1912

EXPORT AND MANUFACTURING

BUREAU OF PLANT INDUSTRY, U.S. DEPARTMENT OF AGRICULTURE

B.T. GALLOWAY
CHIEF OF BUREAU

W.W. GARNER
PHYSIOLOGIST IN CHARGE OF TOBACCO INVESTIGATIONS

SCALE OF MILES

0 20 40 60 80

TO ACCOMPANY BULLETIN PREPARED BY
E.H. MATTHEWSON
CROP TECHNOLOGIST

DRAWN BY
J.M. STEVENSON

LEGEND

	ANNUAL PRODUCTION
NEW BELT BRIGHT OR FLUE-CURED MANUFACTURING	N.C. 70,000,000 LBS. S.C. 25,000,000 LBS.
OLD BELT BRIGHT OR FLUE-CURED MANUFACTURING	VA. 25,000,000 LBS. N.C. 65,000,000 LBS. TENN. 1,000,000 LBS.
DARK OPEN FIRE-CURED SHIPPING TOBACCO	VA. 50,000,000 LBS.
BLACK OR DARK STEMMING	VA. 2,000,000 LBS.
SUN & AIR-CURED MANUFACTURING	VA. 10,000,000 LBS.
MARYLAND TOBACCO	MD. 17,000,000 LBS.
UPPER COUNTRY OR BAY	MD. 1,000,000 LBS.

Bul. 244, Bureau of Plant Industry, U.S. Dept. of Agriculture.

EXPORT AND MANUFACTURING

TOBACCO DISTRICTS

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UNITED STATES

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1912

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0 5 0 10 20 30

TO ACCOMPANY BULLETIN PREPARED BY
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LEGEND

	ANNUAL PRODUCTION	
PADUCAH DISTRICT	TENN.	15,000,000 LBS.
	KY.	45,000,000 LBS.
CLARKSVILLE AND HOPKINSVILLE DISTRICT	TENN.	30,000,000 LBS.
	KY.	40,000,000 LBS.
STEMMING TOBACCO DISTRICT	KY.	35,000,000 LBS.
GREEN RIVER DISTRICT	KY.	35,000,000 LBS.
SCATTERED BURLEY	KY.	IRREGULAR
BURLEY TOBACCO	OHIO	15,000,000 LBS.
	IND.	8,000,000 LBS.
	W.VA.	8,000,000 LBS.
	KY.	170,000,000 LBS.
EASTERN OHIO EXPORT (SMALL O. TOBACCO) BURLEY	OHIO	3,000,000 LBS. E.OHIO EXPORT 3,000,000 LBS. BURLEY
SOUTHERN KENTUCKY & UPPER CUMBERLAND (ONE-SUCKER TYPE)	KY.	18,000,000 LBS.
	TENN.	7,000,000 LBS.
SOUTHERN INDIANA (ONE-SUCKER TYPE)	IND.	5,000,000 LBS.